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**MONITORED NATURAL ATTENUATION EVALUATION
OPERABLE UNIT 3
HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI**

Prepared for:
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EXECUTIVE SUMMARY

An evaluation was performed to assess the effectiveness of monitored natural attenuation (MNA) at Operable Unit 3 (OU3) of the Hayford Bridge Road Groundwater Site (Site) in St. Charles, Missouri. In accordance with the approved Statement of Work for OU3, an MNA Evaluation is to be submitted approximately one year prior to each five-year review. The next five-year review is scheduled for September 2020. This evaluation was delayed due to prolonged flooding at the site this summer which necessitated that the June 2019 semi-annual sampling event be rescheduled and performed in August 2019. The main findings of the OU3 MNA evaluation activities are summarized below.

- The Monitored Natural Attenuation System (MNAS) consists of the following sampling locations: 19 groundwater monitoring wells at OU3, designated wells at the City of St. Charles Elm Point Wellfield, and effluent at the Elm Point Water Treatment Plant. Between August 2008 and August 2019, monitoring was performed 33 times (e.g., quarterly monitoring through 2013 and semi-annual monitoring beginning in 2014).
- Groundwater monitoring data collected at OU3 supports that the natural attenuation of VOCs is occurring. The parent compounds trichloroethene (TCE) and tetrachloroethene (PCE) were not detected in OU3 monitoring wells. Reductive dechlorination daughter products (*cis*-1,2-DCE and vinyl chloride) were detected at the compliance point monitoring wells. The presence of naturally occurring methane supports that anaerobic reducing conditions, which are favorable for reductive dechlorination, are present. Breakdown products ethene and ethane were detected at interior monitoring well locations supporting that the reductive dechlorination process is proceeding to completion in areas of the OU3 plume. The presence of *Dehalococcoides*, a commonly recognized dechlorinating microbe, was detected in groundwater samples collected at OU3. Site data indicates the presence of organic carbon, ferrous iron, sulfate, and carbon dioxide showing that electron donors and receptors are available. Redox potentials support that anaerobic conditions are present in portions of the aquifer.
- Statistical trend analysis of groundwater data collected from the OU3 MNAS indicates seven decreasing concentration trends and three increasing concentration trends. As expected, intermediate daughter products are exhibiting increases at the plume interior prior to decreasing in the downgradient areas.
- The persistence of contaminant mass in the low permeability cohesive soils at the Operable Unit 1 (OU1) source area is demonstrated by theoretical remedial timeframe calculations. The slow release of contaminant mass at OU1 is related to the presence of low permeability soils, diffusion, and adsorption. While remaining source mass in OU1 will contribute to the OU3 plume, MNA will continue to reduce overall Site risks. The remedial timeframe for OU3 is dependent on migration from OU1.



- With advances in treatment technologies and cost savings, we recommend that direct injection treatments be evaluated by OU1 representatives to reduce the source area mass at OU1. In our opinion, the source area treatment can provide substantial cost savings to the remediation life cycle at OU1. If implemented properly, we believe the OU1 source can be essentially removed and thereby potentially eliminate the need for hydraulic containment at OU1.
- Institutional controls that have been implemented in OU3 provide the following: affected OU3 groundwater will not be used for potable purposes; and, ponds/lakes will not be constructed below the upper cohesive soils and into the affected OU3 groundwater. The City of St. Charles Wellhead Protection District ordinance includes provisions that address these institutional controls.
- Semi-annual groundwater sampling and testing of the MNA well network was completed in August 2019. This sampling event was delayed due to prolonged flooding at the site. Sampling and testing of designated City Wells and effluent at the City of St. Charles Elm Point Water Treatment Plant was also performed. Key findings include:
 - Volatile organic compounds (VOCs) detected above maximum contaminant levels (MCLs) included vinyl chloride, and benzene.
 - As part of the 2015 five-year review for OU3, 1,4-dioxane was added to the list of groundwater testing parameters. 1,4-dioxane was detected in samples collected from seven OU3 monitoring wells at concentrations ranging from 0.63 J parts per billion (ppb) to 9.57 ppb.
 - Acetone (8.0 J ppb) and chlorobenzene (0.4 J ppb) were detected in the treatment plant effluent sample, however neither compound was detected in any of the MNA well network samples and are not considered OU3 chemicals of concern (COCs). Acetone is a common laboratory cleaner.

1.0 INTRODUCTION

The Hayford Bridge Road (HBR) Site is located in St. Charles County, Missouri near the intersection of Elm Point Road and Governor Drive as shown on Plate 1. The USEPA defines the Site as “the properties owned by Findett Corporation, Cadmus Corporation, and all properties where groundwater contamination has migrated.” OU3 is approximately 50 acres and includes areas north, northwest, and east of the Findett property and areas east of the Cadmus property. As indicated on Plate 1, the topography of the Site and the surrounding area is relatively flat north of Elm Point Road. Relatively steep uplands, adjacent to the floodplain, are south of Elm Point Road. The Mississippi River is approximately 3 miles north of the Site, with several creeks between the Site and the Mississippi River. Surface water and groundwater generally flow north to northwest. Groundwater flow in the area is influenced by the City of St. Charles Elm Point Well Field.



The Site is divided into three operable units: OU1 addresses the soil and shallow groundwater contamination on the Findett property; OU2 addresses the soil contamination on the former Cadmus property, which is now owned by Findett; and OU3 addresses affected groundwater that has migrated off OU1 and OU2.

A Remedial Investigation and Feasibility Study (RI/FS) was conducted at OU3 between 2002 and 2005. The main purpose of the RI/FS was to define the horizontal and vertical extent of affected groundwater originating from and downgradient of OU1 and to develop remedial alternatives to address the affected groundwater. A Record of Decision (ROD) based on the RI/FS was issued in September 2005. A Consent Decree and Statement of Work (SOW) for the Remedial Design/Remedial Action (RD/RA) at OU3 was completed in 2007. The RD/RA Work Plan for OU3 was completed and approved in April 2008 consistent with the OU3 RI/FS, ROD, and Consent Decree. The RD/RA Construction Completion Report was submitted to the USEPA and the MDNR in December 2008 consistent with the approved RD/RA Work Plan. The RD/RA Construction Completion Report was conditionally approved by the USEPA in May 2009. An MNA Remedial Timeframe Work Plan was submitted to the USEPA and the MDNR in March 2009. The approved remedy for OU3 includes four main components:

- 1) Institutional Controls (ICs) - The ICs prohibit use of OU3 affected groundwater for potable purposes and prohibit construction of ponds/lakes below the upper cohesive soils and into the alluvial aquifer within OU3. The City of St. Charles Wellhead Protection District ordinance includes provisions that address these institutional controls.
- 2) Aeration Upgrade – A design report for contingent air stripping towers was submitted to the USEPA and the MDNR in February 2011.
- 3) Monitored Natural Attenuation (MNA) – Site data supports that natural attenuation is occurring at OU3 and that MNA can be part of an effective remedy for OU3.
- 4) Remedial Contingency Plan – This plan describes the contingency measures that will provide an additional level of protection if natural attenuation processes do not achieve the expected results.

Per the approved Statement of Work for OU3, an MNA Evaluation Report, which includes remedial timeframes, is to be submitted approximately one year prior to each five-year review (the next five-year review is scheduled for September 2020). This report also contains a summary of groundwater sampling and testing of the MNAS consistent with the approved RD/RA Work Plan. The groundwater sampling and testing completed in August 2019 was the 33rd groundwater sampling and testing event at OU3.



2.0 MONITORED NATURAL ATTENUATION

MNA is a key part of the approved remedy for OU3. MNA consists of two components: the natural attenuation of COCs in groundwater on the site, and a monitoring well network to observe and document the attenuation process through regular sampling and analysis of groundwater samples.

2.1 Monitored Natural Attenuation System

The MNAS for OU3 consists of 14 perimeter compliance point monitoring wells, five plume interior monitoring wells, designated wells at the City of St. Charles Elm Point Wellfield, and effluent at the Elm Point Water Treatment Plant.

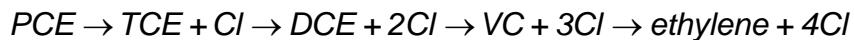
Analysis of groundwater samples from the perimeter and interior monitoring wells includes both VOCs and geochemical parameters to document the plume status and subsurface conditions that are favorable for natural attenuation.

Analysis of water samples collected from wells in the City of St. Charles Elm Point Wellfield and effluent at the Elm Point Water Treatment Plant included VOCs to assist with protecting human health and the environment including the City of St. Charles water supply.

2.2 Natural Attenuation Processes

Natural attenuation mechanisms include physical, chemical and biological processes that reduce the mass, volume or concentration of contaminants. These processes include advection, dispersion, absorption, biodegradation, and volatilization.

Biodegradation of chlorinated hydrocarbons occurs mainly through a process known as reductive dechlorination. During reductive dechlorination, microorganisms use naturally occurring or anthropogenic organic carbon as a source of energy. During metabolism by the microorganism, the chlorinated hydrocarbon is used as an electron acceptor, and a chlorine atom is removed and replaced by a hydrogen atom. This microbial process is also termed dehalorespiration. The general sequence of dechlorination proceeds from tetrachloroethene (PCE) to trichloroethene (TCE) to dichloroethene (DCE) to vinyl chloride (VC) to ethene.



As reductive dechlorination proceeds, daughter products or intermediate metabolites are produced and serve as evidence that natural attenuation is occurring. Trends in geochemical indicators are also used as supporting evidence of reductive dechlorination. The breakdown sequence shown above is important because it is part of the basis for interpreting VOC trends and evaluating reductive dechlorination.



A primary line of evidence for reductive dechlorination that has been identified at many sites is the presence of reductive dechlorination daughter products (i.e., breakdown from a parent compound such as TCE or PCE) that are the result of naturally occurring microbial activity in groundwater. When daughter products (e.g., cis-1,2-DCE or vinyl chloride) are not present in the material initially released, reductive dechlorination can be inferred if the daughter products are subsequently identified during monitoring. For some intermediate products that are being produced, such as cis-1,2-DCE, concentrations may increase in some areas before decreasing. In addition, intermediate breakdown products like cis-1,2-DCE and vinyl chloride can be produced and removed simultaneously at different points in the saturated zone.

Other reductive dechlorination processes besides dehalorespiration described above include cometabolic anaerobic reductive dechlorination and abiotic reductive dechlorination. Cometabolism is a reaction where a chlorinated organic is reduced by a non-specific enzyme or co-factor produced during microbial metabolism of another compound during anaerobic conditions. Cometabolism of the chlorinated compound does not provide energy or growth for the microbe causing the reaction. To sustain this process, an adequate primary substrate such as organic carbon is required to support growth of the transforming microorganisms. Abiotic dechlorination is a chemical degradation reaction not associated with biological activity where a chlorinated hydrocarbon is reduced by a reactive compound.

Reductive dechlorination influences each of the chlorinated compounds differently. For example, PCE and TCE are mainly affected by anaerobic dechlorination because they are the most oxidized. In contrast, vinyl chloride is the least oxidized and the least affected by anaerobic dechlorination. Vinyl chloride can accumulate at sites where it is generated faster than it is reduced. Aerobic biodegradation of vinyl chloride can occur on the fringes of the plume where conditions are aerobic.

Information related to natural attenuation and remediation of chlorinated hydrocarbons and fuel hydrocarbons is continually changing as more field data becomes available. It should be recognized that the biodegradation of these compounds is a dynamic process that is influenced by many factors. Extensive works are available in the literature for further information about natural attenuation and reductive dechlorination.

2.3 Lines of Evidence

As detailed in previous groundwater monitoring reports prepared for OU3, various lines of evidence show that natural attenuation through reductive dechlorination and possibly other processes are occurring at the Site. Natural attenuation data for the Site compares favorably with MNA criteria set forth by the USEPA, as shown in the MNA screening rubric in Appendix A. This evidence includes:

- Declining COC concentrations in the source area (OU1) and presence of degradation products in the source area.



- Parent products are not present in OU3 groundwater, while degradation products are present.
- The detection of primarily vinyl chloride at the farthest reaches of the plume.
- The presence of Dehalococcoides, which is a commonly recognized dechlorinating microbe.
- The presence of organic carbon, ferrous iron, sulfate, methane, and carbon dioxide generally show that electron donors and receptors are available. Ethene and ethane are also present and show completion of the process. A summary of the geochemical parameters is provided in Table 4 and Appendix B.
- Redox potentials are favorable and support anaerobic conditions in portions of the aquifer.

3.0 GROUNDWATER SAMPLING ACTIVITIES

The first semi-annual groundwater sampling event of 2019 was delayed due to flooding at the site. Groundwater sampling and testing of the OU3 MNA well network was performed August 26 through 30, 2019. Groundwater samples were not collected at Monitoring Wells MW-C18 and MW-C19 due to remnant floodwaters.

Sampling of the water treatment plant effluent and City Wells W-8, W-9, and W-10 was conducted on August 29, 2019. Other City wells were not sampled due to the wells being shut down at the time of the sampling event and the City electing to not sample the wells.

3.1 MNA Well Network

The OU3 monitoring network consists of 14 perimeter compliance point monitoring wells (MW-C1 through MW-C10 and MW-C16 through MW-C19) and five interior monitoring wells within the affected area (MW-C11 through MW-C15). To enhance the MNA well network, Monitoring Wells MW-C18 and MW-C19 were installed in November 2015.

Groundwater samples were collected from the monitoring wells using a low flow pump. Purge water was monitored using a flow through cell. Parameters monitored during purging included pH, temperature, oxidation-reduction potential, conductivity, dissolved oxygen, and turbidity. Low flow purging was conducted until these parameters stabilized within 10 percent for three consecutive readings after removal of a minimum of one well volume. After low flow purging, groundwater samples were collected into laboratory provided sample containers, placed on ice in a cooler, and submitted to Teklab, Inc. for analysis of the following parameters: VOCs including 1,4-dioxane, nitrate, sulfate, ferrous iron, dissolved organic carbon, chloride, carbon dioxide, methane, ethane, and ethene.



3.2 Elm Point Wellfield

Sampling of City Wells W-8, W-9, and W-10 was conducted on August 29, 2019. Groundwater sampling was performed after purging each city well for several minutes. Water samples were analyzed for VOCs including 1,4-dioxane. A summary of the City of St. Charles sampling locations is in Table 2 and 3.

3.3 Effluent Sampling – City of St. Charles Elm Point Water Treatment Plant

Effluent sampling at the water treatment plant was performed in coordination with plant personnel on August 29, 2019. The water sample was analyzed for VOCs including 1,4-dioxane.

4.0 GROUNDWATER TESTING RESULTS

A summary of the August 2019 groundwater testing results is provided below. The primary COCs identified at OU3 during the RI/FS and their respective cleanup standards are benzene (5 ppb), 1,1-dichloroethene (7 ppb), cis-1,2-dichloroethene (cis-1,2-DCE; 70 ppb), chloroethane (5 ppb), and vinyl chloride (2 ppb).

An electronic groundwater database has been established for the groundwater testing data collected at OU3. The database utilizes the statistical software *Sanitas™ for Ground Water*, a commercially available statistical software package. The statistical database assists with analyzing the MNA sampling data, groundwater concentration trends, and remedial timeframes. The August 2019 groundwater testing results were added to the OU3 groundwater database.

4.1 Volatile Organics

VOCs that were detected at OU3 are shown on Plate 5 and Table 2. A summary of the City of St. Charles sampling locations is provided in Table 3. Laboratory testing reports are in Appendix C. VOC concentrations shown on Plate 5 that were detected at or above the MCL are listed below:

vinyl chloride – Monitoring Wells MW-C3, -C8, -C11, -C13, -C15, -C16, and -C17

benzene – Monitoring Wells MW-C13, and -C15

Samples collected from Monitoring Wells MW-C1, MW-C2, MW-C4 through MW-C7, MW-C9, MW-C10, MW-C12, and MW-C14 did not exhibit groundwater concentrations above MCLs.

Monitoring wells that exhibited detections of 1,4-dioxane are indicated below. The laboratory practical quantitation limit (PQL) and method detection limit (MDL) for 1,4-dioxane are generally 1 ppb and 0.37 ppb, respectively. Concentrations below the PQL are estimated values.

MW-C3 0.63 J ppb

MW-C4 1.37 ppb

MW-C8 1.00 ppb



MW-C13 8.42 ppb

MW-C15 9.57 ppb

MW-C16 0.86 J ppb

MW-C17 1.47 ppb

USEPA has not established an MCL for 1,4-dioxane. City wells and the treatment plant effluent did not exhibit detections of 1,4-dioxane with the exception of City Well W-10 (1.26 ppb). In our opinion, due to the proximity of City Well W-10 to the Ameren substation plume compared to the OU3 plume (see site maps herein), we believe that the 1,4-dioxane detection is related to the Ameren substation plume and not the OU3 plume.



Acetone (8.0 J ppb) and chlorobenzene (0.4 J ppb) were detected in the treatment plant effluent sample, however neither compound was detected in any of the MNA well network samples and are not considered OU3 COCs. Acetone is a common laboratory cleaner. Toluene detections appear to be anomalous and related to the recent site flooding. Toluene was also detected after previous site flooding.

4.2 Geochemical Indicator Parameters

Groundwater geochemical data is collected during each OU3 groundwater monitoring event to assist in evaluating the extent of natural attenuation at the site. Geochemical data is a supporting line of evidence that is used to further evaluate the occurrence of reductive dechlorination.

Geochemical indicator analytical results are summarized in Table 4 and Appendix B, and the significance of these indicators is discussed in Section 5.1 of this report.

4.3 Groundwater Potentiometric Head Elevations

Potentiometric head elevations measured during the August 2019 sampling event are shown on Plate 3 (25'-35' screen interval), Plate 4 (35'-45' screen interval), and Table 1. Groundwater hydrographs for Monitoring Wells MW-C1 through MW-C19 are in Appendix D. The potentiometric head data indicates the groundwater gradient at OU3 is towards the north.

5.0 MNA DATA EVALUATION

5.1 Geochemical Indicator Evaluation

Geochemical data is a supporting line of evidence that is used to further evaluate the occurrence of reductive dechlorination.



The USEPA's Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water¹ (Protocol) provides a screening rubric used to assess the evidence for reductive dechlorination of chlorinated organics. A copy of the screening rubric for OU3 is provided in Appendix A. Data for each geochemical parameter is provided in Table 4 and Appendix B. Based on the screening rubric and interpretation guidelines provided in the Protocol, there is strong evidence for reductive dechlorination of chlorinated organics at OU3. Further discussion of geochemical indicators is provided below.

Chloride

Chloride is an end product and indicator of reductive dechlorination. Chloride concentrations at 13 monitoring wells in the OU3 monitoring network have increased. The average chloride concentration based on 573 measurements is 29.7 ppm with a concentration range of 0.01 ppm to 162 ppm.

Dissolved Organic Carbon

Organic carbon, which serves as a primary substrate or energy source for anaerobic microorganisms, was typically detected in groundwater samples at concentrations ranging from 1 to 10 parts per million (ppm) during the 33 sampling events. The average dissolved organic carbon concentration based on 556 measurements is 2.3 ppm. Concentrations of organic carbon are important in the dechlorination process because organic carbon is the source of energy and the electron donor for anaerobic microorganisms. Groundwater recharge at the site through the organic shallow cohesive soils can supply additional organic carbon to the aquifer.

Dissolved Oxygen

Dissolved oxygen (DO) measurements are used to assess aerobic and anaerobic conditions in groundwater. Groundwater exhibiting DO concentrations above approximately one to two ppm are usually considered aerobic. DO concentrations measured at the site have ranged from less than the detection limit of 0.1 ppm to 5.5 ppm. The dissolved oxygen data indicates that the site groundwater is mainly anaerobic.

Ferrous Iron

Anaerobic reduction of ferric iron (Fe^{3+}) to ferrous iron (Fe^{2+}) is indicated by ferrous iron concentrations typically in the 1 to 10 ppm range, with an average of 6.7 ppm. Based on these concentrations, iron reducing bacteria at the site could be facilitating reductive dechlorination.

¹ Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water, EPA/600/R-98/128; prepared by the United States Environmental Protection Agency Office of Research and Development, dated September 1998.



Carbon Dioxide

Dissolved carbon dioxide in water is typically referred to as carbonic acid (H_2CO_3). Carbon dioxide may be produced as an end product of degradation, such as through the anaerobic oxidation of vinyl chloride to carbon dioxide under iron reducing conditions or by aerobic oxidation. Production of carbon dioxide by biodegradation may be masked by other carbon dioxide sources such as air, organic carbon, and carbonate sediments. Elevated carbon dioxide levels can be indicative of greater microbial activity. Carbon dioxide concentrations range from approximately 0.033 ppm to 129 ppm with an average concentration of 41.1 ppm.

Methane, Ethane, and Ethene

Testing results indicate the presence of methane at each well nest location. While methane concentrations have been as high as a few ppm in some wells during some sampling events, concentrations generally range from a few ppb to several hundred ppb. The methane testing results are indicative of anaerobic conditions favorable for reductive dechlorination. Daughter products ethane and ethene have been detected at several interior monitoring wells, which supports that natural attenuation is occurring within OU3.

Nitrate

Nitrate is generally detected in less than half the monitoring wells at concentrations generally below one ppm. This supports anaerobic conditions that are favorable for reductive dechlorination.

Redox Potential

Redox potential (i.e., oxidation reduction potential, ORP) of groundwater is a relative measure of electron activity and metabolism of organic matter by microorganisms. In general, positive values for redox potential are more indicative of aerobic conditions, and negative values indicate more anaerobic conditions. For example, highly oxygenated groundwater would not be expected to have a low redox potential. The reported optimal range of redox potential for reductive dechlorination is between -100 mV and -250 mV. Redox measurements at the site are generally within the range of reductive dechlorination.

Sulfate

Sulfate concentrations are variable with an average of 78.3 ppm. Sulfate reduction occurs when bacteria (i.e., microorganisms) use the oxygen in SO_4^{2-} to oxidize organic matter to CO_2 , producing sulfide as a by-product. Metabolism by sulfate reducing bacteria will facilitate dechlorination by the replacement of Cl^- with H^+ . The relatively high sulfate concentrations may be related, in part, to fertilizer use in this agricultural area.

5.2 Groundwater Concentration Maps

Groundwater isoconcentration contour maps for cis-1,2-DCE and vinyl chloride at OU1 and OU3 are provided in Appendix E. The contour maps show both the 2014 and the 2019 plume in a side-by-side format.



The highest concentrations of cis-1,2-DCE and vinyl chloride occur at OU1. The OU3 plume extends north and northeast under the agricultural areas.

Generally, the concentration contour maps show that the plume extent is relatively consistent. Higher concentration areas (greater than 10 ppb) appear to be shrinking, and some minor spreading of lower concentration areas (less than 10 ppb) is occurring. The relatively consistent size of the plume over time and the reduced area of higher concentration zones indicates that natural attenuation is occurring at the site and controlling plume expansion.

5.3 Statistical Trend Analysis

Statistical trend analysis using Mann Kendall (95 percent confidence level) and Sen's Slope statistical methods was performed on monitoring well and parameter combinations that exhibited greater than 50 percent detections during the monitoring period. Results of the trend analysis are presented in Appendix F.

Benzene

Decreasing trends were observed at Monitoring Wells C-12 and C-13.

cis-1,2-Dichloroethene

Decreasing trends were observed at Monitoring Wells C-11 and C-12.

An increasing trend was observed at Monitoring Well C-13.

1,1-Dichloroethane

A decreasing trend was observed at Monitoring Well C-11.

An increasing trend was observed at Monitoring Well C-13.

Vinyl Chloride

Decreasing trends were observed at Monitoring Wells C-11 and C-12.

An increasing trend was observed at Monitoring Well C-13.

Significant trends were not indicated at Monitoring Wells MW-C3, MW-C8, and MW-C15.

Concentration trends in the OU3 plume are related to migration from the source area at OU1 due to incomplete hydraulic containment groundwater flow conditions, and natural attenuation processes. Intermediate daughter compounds are produced during natural attenuation and are expected to increase before decreasing in some areas of the OU3 plume. This is reflected in the data, with increasing trends in three intermediate daughter compounds at the interior of the plume at Monitoring Well C-13. Based on the trend plots for this location, recent data for the three daughter compounds depart from the Sen's slope line and may indicate that these concentrations are stabilizing.





Additional groundwater evaluation activities² were completed between May and November 2008 at OU1. Evaluation activities were designed to assess if the OU1 remedy is providing hydraulic containment and to assess if contaminant mass is being released into the OU3 section of the aquifer. Evaluation of the remedial timeframe and natural attenuation at OU3 must consider groundwater originating from OU1. A main finding from the OU1 evaluation activities is that deeper mass at OU1 is not contained by the OU1 groundwater extraction system. During 2011, representatives of the USEPA concurred with the conclusion that deeper contaminant mass is not being effectively contained at OU1. In contrast, the referenced evaluation did indicate that shallow contaminant mass is generally being contained at OU1 contingent on maintenance of extraction well efficiency and operation of the extraction system during cold weather periods.

Concentrations of deeper contaminant mass at OU1 are relatively low. The low permeability cohesive soils (shallow and deep) at OU1 are a reservoir for the slow release of contaminants (diffusion-controlled mass) to the alluvial aquifer. To contain contaminant mass at OU1 in the shallow portion of the alluvial aquifer, efficiency of the extraction wells should be maintained and the extraction system should be operated full time including during cold weather periods.

With advances in treatment technologies and cost savings, we recommend that direct injection treatments be evaluated by OU1 representatives to reduce the source area mass at OU1. In our opinion, the source area treatment can provide substantial cost savings to the remediation life cycle at OU1. If implemented properly, we believe the OU1 source can be essentially removed and thereby eliminate the need for hydraulic containment.

5.4 Remedial Timeframe Analysis

Remedial timeframes for VOCs at a particular monitoring location can be estimated using first-order attenuation rate constant calculations based on changes in measured concentrations over time. Remedial timeframes for OU3 are dependent on contaminant migration from the source area in OU1 and natural attenuation. As a result, the actual OU3 remedial timeframe that is based on OU3 well data is expected to be greater than the calculated remedial timeframe. OU3 remedial timeframe calculations were prepared for well-constituent pairs that exhibit both a decreasing trend and a current concentration that exceeds the MCL. Two well-constituent pairs met these requirements: vinyl chloride at Monitoring Well MW-C11 and benzene at Monitoring Well MW-C13. Calculations and further discussion of the analysis are provided in Appendix G.

² Evaluation of Operable Unit 1, Hayford Bridge Road Groundwater Site, St. Charles, Missouri. Prepared for USEPA on behalf of The HBR OU3 Group. Prepared by Geotechnology, Inc., dated February 12, 2009.



Vinyl chloride at Monitoring Well MW-C11 exhibited a relatively high coefficient of determination (R^2). Based on a 95% confidence interval, estimates for remedial timeframe are between 1 and 3 years.

Benzene at Monitoring Well MW-C13 exhibited a low R^2 . Based on a 95% confidence interval, the lower estimate for remedial timeframe is 6 years. The mean estimate for remedial timeframe is 13 years. Due to the low R^2 , the upper 95% confidence interval for remedial timeframe is not valid.

As previously discussed, intermediate degradation products are expected to increase before decreasing, and well-constituent pairs that do not yet exhibit decreasing trends due to attenuation or transport processes are not accounted for in remedial timeframe calculations. The estimated remedial timeframes are evaluated for specific locations and do not reflect the remedial timeframe for the entire OU3 plume, which is primarily related to OU1 as discussed herein.

5.5 Operable Unit 1

The OU3 plume and the OU3 remedial timeframe are dependent on the source remediation that occurs in OU1. A summary table of OU1 data is provided in Appendix H.

OU1 Statistical Trend Analysis

Mann-Kendall trend analysis was performed for well-constituent pairs with at least 50 percent detections. The results are provided in Appendix I. Decreasing trends were observed at 15 well-constituent pairs and significant trends were not indicated at nine well-constituent pairs. Increasing trends were not observed.

OU1 Remedial Timeframe Analysis

Remedial timeframe calculations were prepared for benzene, TCE, 1,2-DCE (total), and vinyl chloride at Monitoring Well MW-6. The remedial timeframe calculations used data collected since June 1998. Calculations are provided in Appendix J. A summary of the results is provided below.

Compound	R^2	Lower 95% Remedial Timeframe Estimate	Upper 95% Remedial Timeframe Estimate
Benzene	0.122	20 years	290 years
TCE	0.020	30 years	(Not valid due to low R^2)
1,2-DCE (Total)	0.218	42 years	155 years
Vinyl Chloride	0.493	49 years	96 years

Remedial timeframes for OU1 (and OU3) can be reduced by performing additional remedial activities in the source area as recommended herein.



OU1 Mass Flux Analysis

Groundwater concentrations at OU3 are affected by migration of contaminant mass from OU1. An overall assumption is that the remedial timeframe for OU3 will depend on the remedial timeframe for OU1 (i.e., OU3 will not achieve remedial objectives until after OU1 achieves remedial objectives). Mass flux, or migration, of VOCs from OU1 must be considered.

Mass flux is defined as the rate of mass flow across a unit area. Mass flux ($\text{mass}/(\text{length}^2 \cdot \text{time})$) is calculated by multiplying the seepage velocity ($\text{length}/\text{time}$) by concentration ($\text{mass}/\text{length}^3$). For a given transect and plume depth, the mass contributed per time can be calculated.

Calculations were prepared based on the concentrations observed at the eastern boundary of OU1 in the deeper screened zone. The following mass flux rates were calculated for the deeper contaminant migration from OU1 to OU3 across the north and east OU1 boundaries:

1,2-DCE (total): 0.46 kg/year

Vinyl chloride: 0.30 kg/year

While mass that moves from OU1 to OU3 will be addressed by MNA, the mass flux calculations demonstrate that the remedial timeframe of OU3 is dependent on the effectiveness of the hydraulic containment at OU1. As noted herein, in our opinion, implementation of in-situ direct injections at the OU1 source area by OU1 representatives will provide substantial benefits to enhancing the remedial action at OU1 and OU3.



TABLES

TABLE 1
MONITORING WELL DATA SUMMARY
OU1 AND OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

Well ID	Northing	Easting	Ground Surface Elevation	Top of Casing Elevation	Screen Elevation		Groundwater Measurements		
					Top	Bottom	Date	DTW	Potentiometric Head
MW-C1 ^{1,2}	1086193.6	809006	428.95	431.75	397.5	407.5	08/23/04	8.91	422.84
							09/09/04	8.75	423.00
							05/05/05	5.72	426.03
							05/13/05	6.48	425.27
							08/25/08	5.27	426.48
							10/28/08	6.51	425.24
							03/03/09	6.25	425.50
							06/08/09	7.00	424.75
							08/25/09	8.95	422.80
							11/23/09	5.30	426.45
MW-C2 ^{1,2}	1086196.6	809003.7	429.62	429.03	385.56	395.56	03/08/10	6.22	425.53
							06/22/10	3.90	427.85
							09/28/10	4.40	424.63
							11/01/10	10.60	418.43
							03/23/11	1.65	427.38
							06/15/11	3.00	426.03
							09/27/11	7.74	421.29
							12/13/11	8.08	420.95
							03/15/12	4.03	425.00
							06/19/12	6.00	423.03
MW-C3 ^{1,2}	1086196.6	809003.7	429.04	431.75	385.56	395.56	09/26/12	8.98	420.05
							12/10/12	9.65	419.38
							03/18/13	6.56	422.47
							09/20/13	8.97	420.06
							12/11/13	11.27	417.76
							04/28/14	3.57	425.46
							10/28/14	5.19	423.84
							05/12/15	3.30	425.73
							12/11/15	2.90	426.13
							06/16/16	4.70	424.33
MW-C4 ^{1,2}	1086196.6	809003.7	429.66	429.18	385.56	395.56	12/02/16	5.21	423.82
							06/12/17	2.2	426.83
							11/15/17	9.5	419.53
							06/06/18	5.6	423.43
							12/12/18	6.83	422.20
							08/28/19	2.80	426.23
							08/23/04	14.82	416.93
							09/09/04	14.52	417.23
							05/05/05	12.17	419.58
							05/13/05	13.11	418.64
MW-C5 ^{1,2}	1086196.6	809003.7	429.04	431.75	385.56	395.56	08/25/08	10.88	420.87
							10/28/08	12.73	419.02
							03/03/09	12.88	418.87
							06/09/09	11.80	419.95
							08/25/09	15.80	415.95
							11/25/09	13.05	418.70
							03/08/10	12.20	419.55
							06/22/10	4.00	427.75
							09/28/10	8.48	420.70
							11/01/10	18.53	410.65
MW-C6 ^{1,2}	1086196.6	809003.7	429.66	429.18	385.56	395.56	03/23/11	7.89	421.29
							06/15/11	8.70	420.48
							09/27/11	13.27	415.91
							12/13/11	13.60	415.58
							03/15/12	10.56	418.62
							06/19/12	13.75	415.43
							09/26/12	16.50	412.68
							12/10/12	14.00	415.18
							03/18/13	10.80	418.38
							09/20/13	13.00	416.18
MW-C7 ^{1,2}	1086196.6	809003.7	429.04	431.75	385.56	395.56	12/11/13	16.27	412.91
							04/28/14	5.40	423.78
							10/28/14	11.14	418.04
							05/12/15	9.60	419.58
							12/11/15	9.10	420.08
							06/16/16	11.35	417.83
							12/02/16	11.22	417.96
							06/12/17	7.82	421.36
							11/15/17	15.56	413.62
							06/06/18	12.8	416.38
MW-C8 ^{1,2}	1086196.6	809003.7	429.66	429.18	385.56	395.56	12/12/18	10.78	418.40
							08/27/19	10.11	419.07

TABLE 1
MONITORING WELL DATA SUMMARY
OU1 AND OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

Well ID	Northing	Easting	Ground Surface Elevation	Top of Casing Elevation	Screen Elevation		Groundwater Measurements		
					Top	Bottom	Date	DTW	Potentiometric Head
MW-C3	1086771.5	810161.4	429.15	432.15	407.88	397.88	08/23/04	15.98	416.17
							09/09/04	15.63	416.52
							05/05/05	13.13	419.02
							05/13/05	14.29	417.86
							08/26/08	11.62	420.53
							10/28/08	13.36	418.79
							03/03/09	13.61	418.54
							06/09/09	12.56	419.59
							08/25/09	17.01	415.14
							11/25/09	14.88	417.27
							03/09/10	13.11	419.04
							06/23/10	14.74	417.41
							09/27/10	13.43	418.72
							11/02/10	21.17	410.98
							03/21/11	11.36	420.79
							06/14/11	13.20	418.95
							09/28/11	17.80	414.35
							12/12/11	18.14	414.01
							03/13/12	14.94	417.21
							06/19/12	18.35	413.80
							09/25/12	21.45	410.70
							12/12/12	19.51	412.64
							03/19/13	13.40	418.75
							06/18/13	8.11	424.04
							09/20/13	16.92	415.23
							12/11/13	17.11	415.04
							04/30/14	12.24	419.91
							10/29/14	13.94	418.21
							05/12/15	13.52	418.63
							12/11/15	15.39	416.76
							06/13/16	14.92	417.23
							12/02/16	16.60	415.55
							06/13/17	12.42	419.73
							11/13/17	20.15	412.00
							06/05/18	17.95	414.20
							12/11/18	15.40	416.75
							08/30/19	14.94	417.21
MW-C4	1086774.7	810161.3	429.21	432.26	396.69	386.69	08/23/04	16.10	416.16
							09/09/04	15.73	416.53
							05/05/05	13.23	419.03
							05/13/05	14.37	417.89
							08/26/08	11.69	420.57
							10/28/08	13.48	418.78
							03/03/09	13.05	419.21
							06/09/09	12.68	419.58
							08/25/09	17.12	415.14
							11/25/09	14.95	417.31
							03/09/10	13.16	419.10
							06/23/10	15.26	417.00
							09/27/10	13.48	418.78
							11/02/10	21.20	411.06
							03/21/11	11.42	420.84
							06/14/11	13.24	419.02
							09/28/11	17.84	414.42
							12/12/11	18.19	414.07
							03/13/12	14.98	417.28
							06/19/12	18.39	413.87
							09/25/12	21.51	410.75
							12/12/12	19.57	412.69
							03/19/13	13.40	418.86
							06/18/13	8.19	424.07
							09/20/13	16.96	415.30
							12/11/13	21.21	411.05
							04/30/14	12.28	419.98
							10/29/14	13.98	418.28
							05/12/15	13.54	418.72
							12/11/15	15.44	416.82
							06/13/16	14.98	417.28
							12/02/16	18.45	413.81
							06/13/17	12.45	419.81
							11/13/17	20.15	412.11
							06/05/18	17.95	414.31
							12/11/18	15.03	417.23
							08/30/19	14.98	417.28

TABLE 1
MONITORING WELL DATA SUMMARY
OU1 AND OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

Well ID	Northing	Easting	Ground Surface Elevation	Top of Casing Elevation	Screen Elevation		Groundwater Measurements		
					Top	Bottom	Date	DTW	Potentiometric Head
MW-C5	1087099.2	810807.1	430.8	433.76	408.72	398.72	08/23/04	16.15	417.61
							09/09/04	17.68	416.08
							05/04/05	14.77	418.99
							05/05/05	14.95	418.81
							05/13/05	16.03	417.73
							05/17/05	16.33	417.43
							08/26/08	13.21	420.55
							10/28/08	14.98	418.78
							03/03/09	15.15	418.61
							06/09/09	14.30	419.46
							08/26/09	18.90	414.86
							11/24/09	16.67	417.09
							03/10/10	16.90	416.86
							06/23/10	16.48	417.28
							09/28/10	13.38	420.38
							11/02/10	23.29	410.47
							03/22/11	13.89	419.87
							06/13/11	15.34	418.42
							09/29/11	19.41	414.35
							12/14/11	18.14	415.62
							03/14/12	16.08	417.68
							06/20/12	20.77	412.99
							09/25/12	23.35	410.41
							12/12/12	21.03	412.73
							03/20/13	15.90	417.86
							06/19/13	9.88	423.88
							09/19/13	19.27	414.49
							12/09/13	21.56	412.20
							04/30/14	14.02	419.74
							10/29/14	15.58	418.18
							05/13/15	15.18	418.58
							12/09/15	16.98	416.78
							06/14/16	17.30	416.46
							11/30/16	16.57	417.19
							06/13/17	14.32	419.44
							11/14/17	21.90	411.86
							06/05/18	20.24	413.52
							12/11/18	16.45	417.31
							08/28/19	16.78	416.98
MW-C6	1087098.9	810810.3	430.86	433.55	397.73	387.73	08/23/04	18.04	415.51
							09/09/04	17.56	415.99
							05/04/05	14.68	418.87
							05/05/05	14.82	418.73
							05/13/05	15.86	417.69
							05/17/05	16.18	417.37
							08/26/08	13.01	420.54
							10/28/08	14.78	418.77
							11/17/08	15.62	417.93
							11/24/08	15.55	418.00
							03/03/09	15.00	418.55
							06/10/09	14.17	419.38
							08/26/09	18.85	414.70
							11/24/09	16.75	416.80
							03/10/10	16.85	416.70
							06/23/10	16.50	417.05
							09/28/10	13.65	419.90
							11/02/10	23.25	410.30
							03/22/11	13.81	419.74
							06/13/11	15.26	418.29
							09/29/11	19.38	414.17
							12/14/11	17.98	415.57
							03/14/12	15.92	417.63
							06/20/12	19.02	414.53
							09/25/12	23.20	410.35
							12/12/12	20.83	412.72
							03/20/13	14.80	418.75
							06/19/13	9.75	423.80
							09/19/13	19.07	414.48
							12/09/13	21.50	412.05
							04/30/14	13.90	419.65
							10/29/14	15.44	418.11
							05/13/15	15.10	418.45
							12/09/15	16.51	417.04
							06/14/16	17.25	416.30
							11/30/16	15.53	418.02
							06/13/17	14.25	419.30
							11/14/17	21.71	411.84
							06/05/18	20.30	413.25
							12/11/18	16.26	417.29
							08/28/19	16.81	416.74

TABLE 1
MONITORING WELL DATA SUMMARY
OU1 AND OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

Well ID	Northing	Easting	Ground Surface Elevation	Top of Casing Elevation	Screen Elevation		Groundwater Measurements		
					Top	Bottom	Date	DTW	Potentiometric Head
MW-C7	1087080.7	811471.7	431.88	434.56	411.03	401.03	08/23/04	13.88	420.68
							09/09/04	13.45	421.11
							05/04/05	12.44	422.12
							05/05/05	12.52	422.04
							05/13/05	13.25	421.31
							05/17/05	13.58	420.98
							08/26/08	11.64	422.92
							10/28/08	15.43	419.13
							03/02/09	15.78	418.78
							06/09/09	14.90	419.66
							08/26/09	19.63	414.93
							11/23/09	17.28	417.28
							03/09/10	15.67	418.89
							06/23/10	17.49	417.07
							09/28/10	14.40	420.16
							11/02/10	24.38	410.18
							03/23/11	13.42	421.14
							06/15/11	16.30	418.26
							09/29/11	20.02	414.54
							12/13/11	19.11	415.45
							03/12/12	16.55	418.01
							06/19/12	21.71	412.85
							09/24/12	24.36	410.20
							12/10/12	20.82	413.74
							03/19/13	15.95	418.61
							06/19/13	10.70	423.86
							09/19/13	20.36	414.20
							12/11/13	22.72	411.84
							04/29/14	15.26	419.30
							10/28/14	17.24	417.32
							05/14/15	16.01	418.55
							12/01/15	14.68	419.88
							06/15/16	18.70	415.86
							11/30/16	15.12	419.44
							06/14/17	15.63	418.93
							11/16/17	22.81	411.75
							06/04/18	22.17	412.39
							12/11/18	17.02	417.54
							08/28/19	18.23	416.33
MW-C8	1087082.4	811475.3	431.79	434.8	399.51	389.51	08/23/04	19.87	414.93
							09/09/04	19.31	415.49
							05/04/05	16.04	418.76
							05/05/05	16.16	418.64
							05/13/05	17.16	417.64
							05/17/05	17.51	417.29
							08/26/08	14.34	420.46
							10/28/08	15.92	418.88
							03/02/09	16.24	418.56
							06/09/09	15.35	419.45
							08/25/09	20.15	414.65
							11/23/09	17.88	416.92
							03/09/10	16.33	418.47
							06/23/10	18.15	416.65
							09/28/10	14.78	420.02
							11/02/10	25.01	409.79
							03/23/11	13.96	420.84
							06/15/11	16.81	417.99
							09/29/11	20.42	414.38
							12/13/11	17.78	417.02
							03/12/12	16.98	417.82
							06/19/12	22.25	412.55
							09/24/12	24.82	409.98
							12/10/12	21.12	413.68
							03/19/13	16.22	418.58
							06/19/13	10.95	423.85
							09/19/13	20.64	414.16
							12/11/13	23.06	411.74
							04/29/14	15.50	419.30
							10/28/14	17.58	417.22
							05/14/15	16.32	418.48
							12/01/15	15.02	419.78
							06/15/16	18.95	415.85
							11/30/16	17.80	417.00
							06/14/17	15.90	418.90
							11/16/17	23.12	411.68
							06/04/18	22.24	412.56
							12/11/18	17.38	417.42
							08/28/19	18.42	416.38

TABLE 1
MONITORING WELL DATA SUMMARY
OU1 AND OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

Well ID	Northing	Easting	Ground Surface Elevation	Top of Casing Elevation	Screen Elevation		Groundwater Measurements		
					Top	Bottom	Date	DTW	Potentiometric Head
MW-C9	1086555.2	811863.1	434.18	437.3	412.52	402.52	08/23/04	14.50	422.80
							09/09/04	13.93	423.37
							05/04/05	10.19	427.11
							05/05/05	10.22	427.08
							05/13/05	11.03	426.27
							05/17/05	11.06	426.24
							08/28/08	8.64	428.66
							10/27/08	11.36	425.94
							03/02/09	10.64	426.66
							06/09/09	10.18	427.12
							08/24/09	14.30	423.00
							11/23/09	9.36	427.94
							03/08/10	9.87	427.43
							06/22/10	9.80	427.50
							09/28/10	12.60	424.70
							11/02/10	16.00	421.30
							03/22/11	7.60	429.70
							06/15/11	12.57	424.73
							09/27/11	16.01	421.29
							12/13/11	15.90	421.40
							03/13/12	12.47	424.83
							06/18/12	14.68	422.62
							09/24/12	19.47	417.83
							12/12/12	18.50	418.80
							03/21/13	10.95	426.35
							06/19/13	8.20	429.10
							09/19/13	17.12	420.18
							12/10/13	19.59	417.71
							04/29/14	11.84	425.46
							10/30/14	11.96	425.34
							05/12/15	9.80	427.50
							12/09/15	9.93	427.37
							06/14/16	10.74	426.56
							11/30/16	11.50	425.80
							06/15/17	9.80	427.50
							11/14/17	19.91	417.39
							06/07/18	13.55	423.75
							12/10/18	14.05	423.25
							08/29/19	10.19	427.11
MW-C10	1086551.7	811866	434.25	436.88	404.26	394.26	08/23/04	21.14	415.74
							09/09/04	20.63	416.25
							05/04/05	16.47	420.41
							05/05/05	16.58	420.30
							05/13/05	17.64	419.24
							05/17/05	17.93	418.95
							08/26/08	13.22	423.66
							10/28/08	15.00	421.88
							03/02/09	14.93	421.95
							06/08/09	13.80	423.08
							08/24/09	18.08	418.80
							11/23/09	14.95	421.93
							03/08/10	14.34	422.54
							06/22/10	15.10	421.78
							09/28/10	14.38	422.50
							11/02/10	21.98	414.90
							03/22/11	12.25	424.63
							06/15/11	15.92	420.96
							09/27/11	19.21	417.67
							12/14/11	18.70	418.18
							03/13/12	16.45	420.43
							06/18/12	20.42	416.46
							09/24/12	23.60	413.28
							12/12/12	21.35	415.53
							03/21/13	15.10	421.78
							06/19/13	10.86	426.02
							09/19/13	20.45	416.43
							12/10/13	23.53	413.35
							04/29/14	15.15	421.73
							10/30/14	11.90	424.98
							05/12/15	14.92	421.96
							12/09/15	15.48	421.40
							06/14/16	17.35	419.53
							11/30/16	15.55	421.33
							06/15/17	14.68	422.20
							11/14/17	23.16	413.72
							06/07/18	20.22	416.66
							12/10/18	16.57	420.31
							08/29/19	16.85	420.03

TABLE 1
MONITORING WELL DATA SUMMARY
OU1 AND OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

Well ID	Northing	Easting	Ground Surface Elevation	Top of Casing Elevation	Screen Elevation		Groundwater Measurements		
					Top	Bottom	Date	DTW	Potentiometric Head
MW-C11	1086185.6	811255.2	NA	437.71	402.15	392.26	08/23/04	15.10	422.61
							09/09/04	14.69	423.02
							05/05/05	11.17	426.54
							05/13/05	11.78	425.93
							08/27/08	9.95	427.76
							10/29/08	12.83	424.88
							03/04/09	12.40	425.31
							06/09/09	12.15	425.56
							08/27/09	15.80	421.91
							11/25/09	10.84	426.87
							03/10/10	11.55	426.16
							06/24/10	11.80	425.91
							09/29/10	13.18	424.53
							11/03/10	17.28	420.43
							03/22/11	9.47	428.24
							06/13/11	11.73	425.98
							09/29/11	17.94	419.77
							12/14/11	17.42	420.29
							03/13/12	13.82	423.89
							06/21/12	16.00	421.71
							09/25/12	20.35	417.36
							12/10/12	19.34	418.37
							03/21/13	12.25	425.46
							06/18/13	9.48	428.23
							09/19/13	17.98	419.73
							12/10/13	20.09	417.62
							05/01/14	13.55	424.16
							10/29/14	13.45	424.26
							05/14/15	11.49	426.22
							12/10/15	11.43	426.28
							06/15/16	12.80	424.91
							12/01/16	16.40	421.31
							06/15/17	10.78	426.93
							11/14/17	21.40	416.31
							06/05/18	14.10	423.61
							12/10/18	15.92	421.79
							08/30/19	11.32	426.39
MW-C12	1086309	810479.5	430.9	434.18	406.4	396.4	08/27/08	8.05	426.13
							10/29/08	10.25	423.93
							03/04/09	10.00	424.18
							06/10/09	10.36	423.82
							08/26/09	14.15	420.03
							11/24/09	10.95	423.23
							03/09/10	12.80	421.38
							06/24/10	13.00	421.18
							09/29/10	12.05	422.13
							11/03/10	17.82	416.36
							03/21/11	9.16	425.02
							06/13/11	11.39	422.79
							09/27/11	16.78	417.40
							12/12/11	16.78	417.40
							03/14/12	13.41	420.77
							06/20/12	16.90	417.28
							09/25/12	20.61	413.57
							12/11/12	19.40	414.78
							03/20/13	13.08	421.10
							06/20/13	8.48	425.70
							09/18/13	18.67	415.51
							12/09/13	22.12	412.06
							05/01/14	12.16	422.02
							10/27/14	14.01	420.17
							05/13/15	12.08	422.10
							12/11/15	12.69	421.49
							06/13/16	12.47	421.71
							12/01/16	13.44	420.74
							06/12/17	10.23	423.95
							11/13/17	22.30	411.88
							06/06/18	14.40	419.78
							12/10/18	14.50	419.68
							08/29/19	10.66	423.52

TABLE 1
MONITORING WELL DATA SUMMARY
OU1 AND OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

Well ID	Northing	Easting	Ground Surface Elevation	Top of Casing Elevation	Screen Elevation		Groundwater Measurements		
					Top	Bottom	Date	DTW	Potentiometric Head
MW-C13	1086306.1	810478.4	431	434.23	395.75	385.75	08/27/08	13.79	420.44
							10/29/08	15.30	418.93
							11/17/08	16.22	418.01
							11/24/08	16.25	417.98
							03/04/09	15.40	418.83
							06/10/09	14.70	419.53
							08/26/09	19.18	415.05
							11/24/09	16.85	417.38
							03/09/10	15.50	418.73
							06/24/10	16.70	417.53
							09/29/10	14.20	420.03
							11/03/10	23.26	410.97
							03/21/11	13.35	420.88
							06/13/11	15.42	418.81
							09/27/11	19.43	414.80
							12/12/11	20.10	414.13
							03/14/12	16.48	417.75
							06/20/12	20.85	413.38
							09/25/12	23.53	410.70
							03/20/13	13.05	421.18
							06/20/13	10.55	423.68
							09/18/13	21.49	412.74
							12/09/13	19.92	414.31
							05/01/14	14.34	419.89
							10/27/14	17.53	416.70
							05/13/15	15.58	418.65
							12/11/15	17.38	416.85
							06/13/16	16.85	417.38
							12/01/16	11.12	423.11
							06/12/17	14.20	420.03
							11/13/17	19.60	414.63
							06/06/18	20.19	414.04
							12/10/18	17.93	416.30
							08/29/19	17.03	417.20
MW-C14	1086469.9	810950.3	433.1	436.36	408.27	398.27	08/27/08	8.35	428.01
							10/29/08	11.03	425.33
							03/04/09	10.53	425.83
							06/10/09	9.94	426.42
							08/26/09	14.65	421.71
							11/25/09	8.38	427.98
							03/10/10	9.40	426.96
							06/24/10	9.02	427.34
							09/29/10	12.80	423.56
							11/03/10	15.75	420.61
							03/22/11	7.05	429.31
							06/14/11	9.70	426.66
							09/28/11	16.71	419.65
							12/12/11	17.09	419.27
							03/14/12	12.73	423.63
							06/20/12	14.50	421.86
							09/25/12	19.75	416.61
							12/11/12	18.95	417.41
							03/20/13	12.50	423.86
							06/20/13	7.78	428.58
							09/19/13	19.97	416.39
							12/10/13	20.68	415.68
							05/02/14	12.31	424.05
							10/28/14	12.25	424.11
							05/13/15	9.50	426.86
							12/10/15	9.54	426.82
							06/14/16	11.02	425.34
							12/01/16	12.85	423.51
							06/13/17	10.64	425.72
							11/13/17	21.80	414.56
							06/06/18	15.60	420.76
							12/10/18	16.83	419.53
							08/30/19	12.61	423.75

TABLE 1
MONITORING WELL DATA SUMMARY
OU1 AND OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

Well ID	Northing	Easting	Ground Surface Elevation	Top of Casing Elevation	Screen Elevation		Groundwater Measurements		
					Top	Bottom	Date	DTW	Potentiometric Head
MW-C15	1086474.1	810956.2	433.05	436.33	397.72	387.72	08/27/08	15.90	420.43
							10/29/08	17.40	418.93
							03/04/09	17.51	418.82
							06/10/09	16.82	419.51
							08/26/09	21.50	414.83
							11/25/09	19.50	416.83
							03/10/10	19.60	416.73
							06/24/10	19.00	417.33
							09/29/10	16.35	419.98
							11/03/10	25.90	410.43
							03/22/11	15.08	421.25
							06/14/11	17.88	418.45
							09/28/11	22.04	414.29
							12/12/11	21.93	414.40
							03/14/12	18.61	417.72
							06/20/12	23.25	413.08
							09/25/12	25.90	410.43
							12/11/12	23.35	412.98
							03/20/13	17.65	418.68
							06/20/13	12.68	423.65
							09/19/13	21.89	414.44
							12/10/13	24.31	412.02
							05/02/14	16.53	419.80
							10/28/14	18.64	417.69
							05/13/15	17.75	418.58
							12/10/15	19.71	416.62
							06/14/16	19.50	416.83
							12/01/16	19.68	416.65
							06/13/17	16.89	419.44
							11/13/17	24.65	411.68
							06/06/18	23.08	413.25
							12/10/18	18.91	417.42
							08/30/19	19.79	416.54
MW-C16	1087372.9	812482.6	436.09	438.91	394.92	384.92	08/26/08	18.18	420.73
							10/27/08	19.71	419.20
							03/02/09	20.13	418.78
							06/08/09	19.95	418.96
							08/24/09	23.90	415.01
							11/17/09	23.85	415.06
							03/08/10	21.95	416.96
							06/22/10	23.10	415.81
							09/27/10	18.81	420.10
							11/01/10	29.18	409.73
							03/23/11	20.60	418.31
							06/14/11	22.33	416.58
							09/28/11	24.44	414.47
							12/13/11	23.29	415.62
							03/12/12	20.90	418.01
							06/18/12	27.26	411.65
							09/26/12	30.65	408.26
							12/11/12	25.38	413.53
							03/19/13	19.51	419.40
							06/17/13	14.59	424.32
							09/18/13	28.47	410.44
							12/11/13	27.78	411.13
							04/28/14	20.59	418.32
							10/27/14	21.38	417.53
							05/11/15	19.90	419.01
							11/30/15	19.11	419.80
							06/15/16	24.17	414.74
							11/29/16	19.92	418.99
							06/14/17	20.25	418.66
							11/15/17	28.65	410.26
							06/07/18	28.97	409.94
							12/12/18	20.68	418.23
							08/28/19	24.88	414.03

TABLE 1
MONITORING WELL DATA SUMMARY
OU1 AND OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

Well ID	Northing	Easting	Ground Surface Elevation	Top of Casing Elevation	Screen Elevation		Groundwater Measurements		
					Top	Bottom	Date	DTW	Potentiometric Head
MW-C17	1087369.7	812477.4	436.09	438.83	370.42	360.42	08/26/08	18.13	420.70
							10/27/08	19.68	419.15
							03/02/09	20.06	418.77
							06/08/09	19.98	418.85
							08/24/09	23.85	414.98
							11/17/09	23.75	415.08
							03/08/10	21.90	416.93
							06/22/10	23.00	415.83
							09/27/10	18.76	420.07
							11/01/10	29.08	409.75
							03/23/11	20.50	418.33
							06/14/11	22.28	416.55
							09/28/11	24.34	414.49
							12/13/11	23.24	415.59
							03/12/12	20.85	417.98
							06/18/12	27.08	411.75
							09/25/12	29.56	409.27
							12/11/12	25.35	413.48
							03/19/13	20.24	418.59
							06/17/13	14.55	424.28
							09/18/13	28.52	410.31
							12/11/13	30.66	408.17
							04/28/14	20.53	418.30
							10/27/14	21.40	417.43
							05/12/15	19.89	418.94
							11/30/15	19.00	419.83
							06/15/16	24.12	414.71
							11/29/16	19.95	418.88
							6/14/17	20.15	418.68
							11/15/17	28.60	410.23
							6/7/18	28.65	410.18
							12/12/18	21.76	417.07
							8/26/19	24.81	414.02
MW-C18	1087565.7	811486.4	432.46	435.29	396.95	387.12	12/09/15	19.19	416.10
							06/16/16	19.40	415.89
							11/09/16	16.58	418.71
							06/14/17	16.32	418.97
							11/15/17	23.25	412.04
							06/04/18	23.14	412.15
							12/12/18	17.20	418.09
							not sampled due to flooding		
							12/09/15	19.95	415.30
							06/16/16	19.35	415.90
MW-C19	1087554.3	811485.2	432.64	435.25	365.06	355.23	11/29/16	16.70	418.55
							06/14/17	16.30	418.95
							11/15/17	23.04	412.21
							06/04/18	22.40	412.85
							12/12/18	17.20	418.05
							not sampled due to flooding		
							08/23/04	39.68	392.46
MW-6	1085594.1	810349.3	430.62	432.14	396.12	374.12	09/09/04	42.19	389.95
							05/05/05	44.56	387.58
							05/13/05	44.98	387.16
							11/17/08	11.81	420.33
							11/24/08	11.50	420.64
EXT-1	1085479.7	810312.5	431.6	433.86	NA	NA	08/23/04	6.76	427.10
							09/09/04	6.59	427.27
							05/05/05	6.17	427.69
							05/13/05	6.68	427.18
							08/23/04	12.16	419.05
LA-3	1085444.3	810407.4	430.73	431.21	372	362	09/09/04	12.17	419.04
							05/05/05	9.50	421.71
							05/13/05	10.73	420.48
							11/17/08	11.04	420.17
							11/24/08	10.99	420.22
							08/23/04	5.45	425.86
							09/09/04	5.58	425.73
UA-3	1085444.2	810412.8	430.94	431.31	390.5	380.5	05/05/05	3.64	427.67
							05/13/05	3.99	427.32
							11/17/08	9.91	421.40
							11/24/08	4.27	427.04
							08/23/04	16.52	415.40
LA-5	1085776.7	810431.5	430.51	431.92	354	344	09/09/04	15.28	416.64
							05/05/05	12.74	419.18
							05/13/05	13.93	417.99
							11/17/08	13.86	418.06
							11/24/08	13.89	418.03

TABLE 1
MONITORING WELL DATA SUMMARY
OU1 AND OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

Well ID	Northing	Easting	Ground Surface Elevation	Top of Casing Elevation	Screen Elevation		Groundwater Measurements		
					Top	Bottom	Date	DTW	Potentiometric Head
MW-2	1085776.8	810439.0	430.38	431.76	402.38	387.38	08/23/04	8.68	423.08
							09/09/04	8.56	423.20
							05/05/05	5.42	426.34
							05/13/05	5.97	425.79
							08/23/04	5.02	426.88
LA-2	1085935.1	810364.9	430.57	431.90	361.60	341.30	09/09/04	3.48	428.42
							05/05/05	2.86	429.04
							05/13/05	3.12	428.78
							11/17/08	8.92	422.98
							11/24/08	8.84	423.06
UA-4	1085709.1	810632.2	430.74	432.12	407.00	386.70	08/23/04	6.81	425.31
							09/09/04	6.18	425.94
							05/05/05	3.17	428.95
							05/13/05	3.56	428.56
							11/17/08	5.48	426.64
LA-4	1085708.7	810626.4	430.75	432.11	356.10	346.10	11/24/08	5.44	426.68
							08/23/04	16.85	415.26
							09/09/04	15.63	416.46
							05/05/05	12.92	419.19
							05/13/05	14.35	417.76
MW-4	1085783.2	810226.5	430.06	433.15	403.56	388.46	11/17/08	13.98	418.13
							11/24/08	14.11	418.00
							08/23/04	10.15	423.00
							09/09/04	9.98	423.17
							05/05/05	6.90	426.25
UA-2	1085934.9	810359.9	430.68	432.05	407.90	387.60	05/13/05	7.50	425.65
							08/23/04	5.09	426.96
							09/09/04	8.82	423.23
							05/05/05	5.69	426.36
							05/13/05	6.25	425.80
MW-5	NA	NA	432 (est)	NA	NA	NA	11/17/08	2.03	430.02
							11/24/08	2.77	429.28
							11/17/08	6.99	NA
MW-5B	NA	NA	432 (est)	NA	NA	NA	11/24/08	6.84	NA
							11/17/08	13.76	NA
							11/24/08	13.76	NA

NOTE: Findet well screen elevations from 1988 RI report.

¹ Converted to flushmount completion in July 2010. Bottom elevation is the revised surface and top of casing elevation.

² Second quarter 2013 guaging results not reported due to flooding and inaccessibility.

* Indicates value was removed.

NA - Not applicable, survey data not provided at OU1.

TABLE 2
VOC DETECTION SUMMARY
OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

J006295.11

Monitoring Well	Date (mo/yr)	Vinyl Chloride MCL=2 ppb	Cis-1,2-Dichloroethene MCL=70 ppb	Benzene MCL=5 ppb	1,1-Dichloroethane PRG=810 ppb	Toluene MCL=1,000 ppb	Trans-1,2-Dichloroethene MCL=100 ppb	1,4-dioxane MCL not established
OU3 Monitoring Wells								
MW-C1	8/18/04							
	9/9/04							
	8/08							
	10/08							
	3/09							
	6/09							
	8/09							
	11/09							
	3/10							
	6/10							
	9/10							
	11/10							
	03/11							
	6/11							
	9/11							
	12/11							
	3/12							
	6/12							
	9/12							
	12/12							
	3/13							
	6/13	Not Sampled Due To Flooding						
	9/13							
	12/13							
	4/14							
	10/14							
	5/15							
	12/15							
	6/16							
	12/16							
	6/17							
	11/17							
	6/18		0.2 J					
	12/18							
	8/19					0.2 J		

NT

TABLE 2
VOC DETECTION SUMMARY
OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

J006295.11

Monitoring Well	Date (mo/yr)	Vinyl Chloride MCL=2 ppb	Cis-1,2-Dichloroethene MCL=70 ppb	Benzene MCL=5 ppb	1,1-Dichloroethane PRG=810 ppb	Toluene MCL=1,000 ppb	Trans-1,2-Dichloroethene MCL=100 ppb	1,4-dioxane MCL not established
MW-C2	8/18/04							
	9/9/04							
	8/08							
	10/08							
	3/09							
	6/09							
	8/09							
	11/09							
	3/10							
	6/10							
	9/10							
	11/10							
	03/11							
	6/11							
	9/11							
	12/11							
	3/12							
	6/12							
	9/12							
	12/12							
	3/13							
	6/13	Not Sampled Due To Flooding						
	9/13							
	12/13							
	4/14							
	10/14							
	5/15							
	12/15							
	6/16							
	12/16							
	6/17							
	11/17							
	6/18							
	12/18							
	8/19							

NT

TABLE 2
VOC DETECTION SUMMARY
OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

J006295.11

Monitoring Well	Date (mo/yr)	Vinyl Chloride MCL=2 ppb	Cis-1,2-Dichloroethene MCL=70 ppb	Benzene MCL=5 ppb	1,1-Dichloroethane PRG=810 ppb	Toluene MCL=1,000 ppb	Trans-1,2-Dichloroethene MCL=100 ppb	1,4-dioxane MCL not established
MW-C3	8/18/04							
	9/9/04							
	08/08					3,140		
	10/08					87.4		
	11/08					13.3		
	3/09							
	6/09	4.4						
	8/09	5.2 (resample 2Q)						
	8/09	5.5 (3Q)						
	11/09	7.4						
	3/10	4.1						
	6/10	3.6 / 4.9						
	9/10	2.9 / 2.9						
	11/10	2.6						
	03/11	2.4/2.1						
	6/11	2.2						
	9/11	4.1						
	12/11	4.4						
	3/12	4.0						
	6/12	3.6						
	9/12	3.8						
	12/12	3.3						
	3/13	3.6						
	6/13	3.6						
	9/13	4.6						
	12/13							
	4/14	3.6						
	10/14							
	5/15	3.4						
	12/15	5.2						
	6/16	5.2						0.54J
	12/16	1.8J						
	6/17	3.5						
	11/17	3.5						0.70 J
	6/18	2.1						0.61 J
	12/18	0.6 J						0.96 J
	8/19	3.9				21.7		0.63 J

NT

TABLE 2
VOC DETECTION SUMMARY
OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

J006295.11

Monitoring Well	Date (mo/yr)	Vinyl Chloride MCL=2 ppb	Cis-1,2-Dichloroethene MCL=70 ppb	Benzene MCL=5 ppb	1,1-Dichloroethane PRG=810 ppb	Toluene MCL=1,000 ppb	Trans-1,2-Dichloroethene MCL=100 ppb	1,4-dioxane MCL not established
MW-C4	8/18/04							
	9/9/04							
	08/08					2,870		
	10/08					534		
	11/08					20.1		
	3/09							
	6/09							
	8/09							
	11/09							
	3/10							
	6/10							
	9/10							
	11/10							
	03/11							
	6/11							
	9/11							
	12/11							
	3/12							
	6/12					21.2		
	9/12							
	12/12							
	3/13							
	6/13							
	9/13							
	12/13							
	4/14							
	10/14							
	5/15							
	12/15							
	6/16							
	12/16							
	6/17							
	11/17							
	6/18							1.02
	12/18							0.40 J
	8/19					121		1.37

TABLE 2
VOC DETECTION SUMMARY
OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

J006295.11

Monitoring Well	Date (mo/yr)	Vinyl Chloride MCL=2 ppb	Cis-1,2-Dichloroethene MCL=70 ppb	Benzene MCL=5 ppb	1,1-Dichloroethane PRG=810 ppb	Toluene MCL=1,000 ppb	Trans-1,2-Dichloroethene MCL=100 ppb	1,4-dioxane MCL not established
MW-C5	8/18/04							
	9/9/04							
	08/08							
	10/08							
	3/09							
	6/09							
	8/09							
	11/09							
	3/10							
	6/10							
	9/10							
	11/10							
	03/11							
	6/11							
	9/11							
	12/11							
	3/12							
	6/12							
	9/12							
	12/12							
	3/13							
	6/12							
	9/13							
	12/13							
	4/30							
	10/14							
	5/15							
	12/15							
	6/16							
	12/16							
	6/17	1.0J						
	11/17							
	6/18							
	12/18							
	8/19							

NT

TABLE 2
VOC DETECTION SUMMARY
OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

J006295.11

Monitoring Well	Date (mo/yr)	Vinyl Chloride MCL=2 ppb	Cis-1,2-Dichloroethene MCL=70 ppb	Benzene MCL=5 ppb	1,1-Dichloroethane PRG=810 ppb	Toluene MCL=1,000 ppb	Trans-1,2-Dichloroethene MCL=100 ppb	1,4-dioxane MCL not established
MW-C6	8/18/04							
	9/9/04							
	08/08					2,590		
	10/08					2.9J		
	11/08					2.5J		
	3/09							
	6/09							
	8/09							
	11/09							
	3/10							
	6/10							
	9/10							
	11/10							
	03/11							
	6/11							
	9/11							
	12/11							
	3/12							
	6/12							
	9/12							
	12/12							
	3/13							
	6/13							
	9/13							
	12/13							
	4/14							
	10/14							
	5/15							
	12/15	0.9J						
	6/16	1.0J						
	12/16							
	6/17							
	11/17							
	6/18							
	12/18							
	8/19	0.5 J				198		

NT

TABLE 2
VOC DETECTION SUMMARY
OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

J006295.11

Monitoring Well	Date (mo/yr)	Vinyl Chloride MCL=2 ppb	Cis-1,2-Dichloroethene MCL=70 ppb	Benzene MCL=5 ppb	1,1-Dichloroethane PRG=810 ppb	Toluene MCL=1,000 ppb	Trans-1,2-Dichloroethene MCL=100 ppb	1,4-dioxane MCL not established
MW-C7	8/18/04							
	9/9/04							
	08/08							
	10/08							
	3/09							
	6/09							
	8/09							
	11/09							
	3/10							
	6/10							
	9/10							
	11/10							
	03/11							
	6/11							
	9/11							
	12/11							
	3/12							
	6/12							
	9/12							
	12/12							
	3/13							
	6/13							
	9/13							
	12/13							
	4/14							
	10/14							
	5/15							
	12/15							
	6/16							
	12/16							
	6/17							
	11/17							
	6/18							
	12/18							
	8/19	0.6 J	0.5 J					

NT

TABLE 2
VOC DETECTION SUMMARY
OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

J006295.11

Monitoring Well	Date (mo/yr)	Vinyl Chloride MCL=2 ppb	Cis-1,2-Dichloroethene MCL=70 ppb	Benzene MCL=5 ppb	1,1-Dichloroethane PRG=810 ppb	Toluene MCL=1,000 ppb	Trans-1,2-Dichloroethene MCL=100 ppb	1,4-dioxane MCL not established
MW-C8	8/18/04							
	9/9/04							
	08/08	1.1J						
	10/08	0.9J	1.1J					
	3/09							
	6/09	1.4J	1.3J					
	8/09	2.3	2.0J					
	11/09	2.2	1.2J					
	3/10	2.5	1.2J					
	6/10	3.3	1.6J					
	9/10	3.8 / 3.8						
	11/10	2.5						
	03/11	7.2						
	6/11	5.6						
	9/11	7.9/8.6						
	12/11	4.2/4.6						
	3/12	2.6						
	6/12	5.2						
	9/12	4.5						
	12/12	7.0						
	3/13	2.5						
	6/13	3.5 / 3.6						
	9/13							
	12/13	2.5						
	4/14	4.9	6.2					
	10/14	5.4						
	5/15	5.1						
	12/15		3.3J					1.02
	6/16	0.7J	2.6J					0.72J
	12/16		1.9J					
	6/17		2.9J					0.76J
	11/17	32.2	11.6		2.8J			3.68
	6/18							
	12/18	2.8	2.7		0.5 J			0.66 J
	8/19	7.3	4.9	0.1 J	0.6 J	0.2 J		1.0

TABLE 2
VOC DETECTION SUMMARY
OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

J006295.11

Monitoring Well	Date (mo/yr)	Vinyl Chloride MCL=2 ppb	Cis-1,2-Dichloroethene MCL=70 ppb	Benzene MCL=5 ppb	1,1-Dichloroethane PRG=810 ppb	Toluene MCL=1,000 ppb	Trans-1,2-Dichloroethene MCL=100 ppb	1,4-dioxane MCL not established
MW-C9	8/18/04							
	9/9/04							
	08/08							
	10/08							
	3/09							
	6/09							
	8/09							
	11/09							
	3/10							
	6/10							
	9/10							
	11/10							
	03/11							
	6/11							
	9/11							
	12/11							
	3/12							
	6/12							
	9/12							
	12/12							
	3/13							
	6/13							
	9/13							
	12/13							
	4/14							
	10/14							
	5/15							
	12/15							
	6/16							
	12/16							
	6/17							
	11/17							
	6/18							
	12/18							
	8/19							

NT

TABLE 2
VOC DETECTION SUMMARY
OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

J006295.11

Monitoring Well	Date (mo/yr)	Vinyl Chloride MCL=2 ppb	Cis-1,2-Dichloroethene MCL=70 ppb	Benzene MCL=5 ppb	1,1-Dichloroethane PRG=810 ppb	Toluene MCL=1,000 ppb	Trans-1,2-Dichloroethene MCL=100 ppb	1,4-dioxane MCL not established
MW-C10	8/18/04							
	9/9/04							
	08/08							
	10/08							
	3/09							
	6/09							
	8/09							
	11/09							
	3/10							
	6/10							
	9/10							
	11/10							
	03/11							
	6/11							
	9/11							
	12/11							
	3/12							
	6/12							
	9/12							
	12/12							
	3/13							
	6/13							
	9/13							
	12/13							
	4/14							
	10/14							
	5/15							
	12/15							
	6/16							
	12/16							
	6/17							
	11/17							
	6/18							
	12/18							
	8/19							

NT

TABLE 2
VOC DETECTION SUMMARY
OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

J006295.11

Monitoring Well	Date (mo/yr)	Vinyl Chloride MCL=2 ppb	Cis-1,2-Dichloroethene MCL=70 ppb	Benzene MCL=5 ppb	1,1-Dichloroethane PRG=810 ppb	Toluene MCL=1,000 ppb	Trans-1,2-Dichloroethene MCL=100 ppb	1,4-dioxane MCL not established
MW-C11	8/18/04	10/27	69/71		9.7/9.3			
	9/9/04	25/24	25/58		6.8/6.7			
	08/08	433	402	7.6J	85.7			
	10/08	159	185	2.9	36.5		3.3J	
	3/09	218/211	196/190	3.3/3.1	39.4/39.0		5.3/5.1	
	6/09	151/158	178/189	2.7/2.8	30.4/32.3			
	8/09	41.3	61.4	0.7J	8.3			
	11/09	90.8	119	1.8J	16.1			
	3/10	39.4	60.3	1.0J	7.8		1.5J	
	6/10	26	50.3	1.0J	6.4			
	9/10	21.7	36.4					
	11/10	20.4	43.5		5.3			
	03/11	21.7	49.2		6			
	6/11	17.1	39.9					
	9/11	21.4	34.3					
	12/11	14.6	29.4					
	3/12	19.6	36.7					
	6/12	18.4	33.3					
	9/12	13.5	33.2					
	12/12	16.1	56.6		5.8			
	3/13	21.5	46.9		5.2			
	6/13	25.7	41.9		6.2			
	9/13	11.2	25.9					
	12/13	12.5	28.5					
	5/14	22.1	30.8					
	10/14	20.3 / 20.6	30.1 / 30.2					
	5/15	19.1	28.2					
	12/15	5.3	14	0.5J	1.9J			
	6/16	3.5	9.5		1.3J			
	12/16	4.1	10.5		1.3J			
	6/17	2.4	8.6					
	11/17	8.8	18.7		2.2J			
	6/18	10.4	22.9	0.3 J	2.6			
	12/18	6.0	22.9		2.2			
	8/19	3.0	6.9	0.2 J	1.0 J	14.6		

NT

TABLE 2
VOC DETECTION SUMMARY
OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

J006295.11

Monitoring Well	Date (mo/yr)	Vinyl Chloride MCL=2 ppb	Cis-1,2-Dichloroethene MCL=70 ppb	Benzene MCL=5 ppb	1,1-Dichloroethane PRG=810 ppb	Toluene MCL=1,000 ppb	Trans-1,2-Dichloroethene MCL=100 ppb	1,4-dioxane MCL not established
MW-C12	08/08	6.4	31.1	88.9	4.2J			
	10/08	6.0	33.9	88.1	4.3J			
	3/09	5.6	31.7	64.2	3.8J			
	6/09	7.9/7.7	39.5/40.1	68.0/68.1	4.0J/4.2J			
	8/09	5.6	35.6	57.9	3.4J			
	11/09	8.6	42.5	55	3.7J			
	3/10	5.4	31.5	33.2	2.8J			
	6/10	6.4	39.1	36.6	3.0J			
	9/10	2.6	24.2	36.5				
	11/10	3.2	33.6	34.0				
	03/11	3.2	28	22.3				
	6/11	4.3	34.7	28.4				
	9/11	4.1	29.7	25.8				
	12/11	2.7/2.5	25.8/26.5	32.7/32.0				
	3/12		15.5/13.8	24.5/20.1				
	6/12	2.5	25.1	25.2				
	9/12	3.2	22.8	35.6				
	12/12	5.1	19.9	31.8				
	3/13	3.8	19.7	43.0				
	6/13	3.1	24.5	14.1				
	9/13		20.1	15.5				
	12/13	3.4	20.2	22.7				
	5/14	3.5 / 3.8	13.3 / 14.4	8.8 / 9.3				
	10/14		13.6	4.6				
	5/15	2.4/2.4	21.4/21.6	8.8/8.9				
	12/15	2.9	26.2	8.3	2.3J			
	6/16	3.1	24.6	5.3	2.2J			
	12/16	3.5	30.7	8.4	2.7J			
	6/17	2.2	26.2	5.5				
	11/17	2.7	25.6	5.3	2.4J			
	6/18	0.8 J / 0.8 J	9.3 / 9.7	1.8 / 1.8	0.9 J / 1.0 J		0.1 J	
	12/18	0.8 J	12.9	2.4	0.9 J			
	8/19	1.3 J	16.5	2.8	0.8 J			

TABLE 2
VOC DETECTION SUMMARY
OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

J006295.11

Monitoring Well	Date (mo/yr)	Vinyl Chloride MCL=2 ppb	Cis-1,2-Dichloroethene MCL=70 ppb	Benzene MCL=5 ppb	1,1-Dichloroethane PRG=810 ppb	Toluene MCL=1,000 ppb	Trans-1,2-Dichloroethene MCL=100 ppb	1,4-dioxane MCL not established
MW-C13	08/08	9.7	37.7	101	5.1			
	10/08	7.0	40.6	93.2	4.9J			
	3/09	11.5	54.9	66.9	5.1		1.7J	
	6/09	22.7	90.8	62.9	6.3			
	8/09	16.0/16.4	79.2/79.6	56.7/56.1	5.5/5.6			
	11/09	10.5	50	51.8	3.9J			
	3/10	12.9	52	40.8	4.0J			
	6/10	19.5 / 20.1	67.5 / 71.6	38.4 / 39.1	4.8J / 5.2		1.5J	
	9/10	15.7	66.8	36.5				
	11/10	10.6	63.5	35.4				
	03/11	18.2	81.2	32.2				
	6/11	20.3	80.1	29.2				
	9/11	36.4	128	27.6	7.3			
	12/11	8.9	91.1		10.0			
	3/12	38.6	170	42.3	10.0			
	6/12	36.9	143	22.3	8.2			
	9/12	56.8	173	35.8	12.3			
	12/12	53.8	226	34.1				
	3/13	39.4	163	38.0	10.0			
	6/13	57.3 / 57.3	195 / 188	20.4 / 21.2	14.2 / 13.6			
	9/13	39.6	158	20.7	10.0			
	12/13	53.7	179	26.0	12.9			
	5/14	64.2	152	16.7	11.1			
	10/14	25.7 / 24.9	214 / 219	7.3 / 7.5	23 / 23			
	5/15	54.9	202	25.0	14.8			
	12/15	41.9	188	24.9	13.4			9.4
	6/16	41.4	216	26.0	14J			5.94
	12/16	51.2	196	33.7	16			2.17
	6/17	39.4	180	24.4	12			7.94
	11/17	42.3	134	21.4	10.8			18.5
	6/18	25.9	115	22.6	8.4		0.3 J	15.4
	12/18	67.0	190	46.4	14.1		0.5 J	8.32
	8/19	18.9	16.6	15.2	3.2	183		8.42

TABLE 2
VOC DETECTION SUMMARY
OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

J006295.11

Monitoring Well	Date (mo/yr)	Vinyl Chloride MCL=2 ppb	Cis-1,2-Dichloroethene MCL=70 ppb	Benzene MCL=5 ppb	1,1-Dichloroethane PRG=810 ppb	Toluene MCL=1,000 ppb	Trans-1,2-Dichloroethene MCL=100 ppb	1,4-dioxane MCL not established
MW-C14	08/08	0.8J						
	10/08	1.2J	1.1J					
	3/09	3.9	1.5J					
	6/09	1.6J	1.1J					
	8/09	0.6J						
	11/09	1.1J/1.0J						
	3/10							
	6/10							
	9/10							
	11/10							
	03/11							
	6/11							
	9/11							
	12/11							
	3/12							
	6/12							
	9/12							
	12/12							
	3/13							
	6/13							
	9/13							
	12/13							
	5/14							
	10/14							
	5/15							
	12/15							
	6/16							
	12/16							
	6/17							
	11/17							
	6/18		0.6 J	0.2 J				
	12/18							
	8/19					0.2 J		

NT

TABLE 2
VOC DETECTION SUMMARY
OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

J006295.11

Monitoring Well	Date (mo/yr)	Vinyl Chloride MCL=2 ppb	Cis-1,2-Dichloroethene MCL=70 ppb	Benzene MCL=5 ppb	1,1-Dichloroethane PRG=810 ppb	Toluene MCL=1,000 ppb	Trans-1,2-Dichloroethene MCL=100 ppb	1,4-dioxane MCL not established
MW-C15	08/08	2.0	2.2J	0.7J				
	10/08	0.8J						
	3/09							
	6/09	0.8J						
	8/09	0.9J						
	11/09	1.9J	1.8J	0.6J				
	3/10	3.4	4.3J	1.2J				
	6/10	3.1	4.2J	1.1J				
	9/10							
	11/10	2.5	6.5					
	03/11							
	6/11	2.9						
	9/11	2.7						
	12/11	2.1						
	3/12							
	6/12							
	9/12	2.7						
	12/12							
	3/13	2.2						
	6/13							
	9/13							
	12/13							
	5/14	22.5 / 23.2						
	10/14	12.4						
	5/15							
	12/15	1.8J						2.37
	6/16	1.6J						2.0
	12/16	0.6J						0.99J
	6/17							2.25
	11/17	40.8	12.9	5.2	2.5J			11.8
	6/18	122	59.5	26.2	8.6		0.1 J	19.9
	12/18	67.5	66.9	18.5	8.1			11.6
	8/19	45.9	37.8	10.9	4.8	16.6		9.57

TABLE 2
VOC DETECTION SUMMARY
OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

J006295.11

Monitoring Well	Date (mo/yr)	Vinyl Chloride MCL=2 ppb	Cis-1,2-Dichloroethene MCL=70 ppb	Benzene MCL=5 ppb	1,1-Dichloroethane PRG=810 ppb	Toluene MCL=1,000 ppb	Trans-1,2-Dichloroethene MCL=100 ppb	1,4-dioxane MCL not established
MW-C16	08/08							
	10/08							
	3/09							
	6/09							
	8/09							
	11/09							
	3/10	1.7J	1.4J					
	6/10	2.3						
	9/10							
	11/10							
	03/11							
	6/11							
	9/11							
	12/11							
	3/12							
	6/12							
	9/12							
	12/12							
	3/13							
	6/13							
	9/13							
	12/13							
	4/14							
	10/14							
	5/15							
	12/15							
	6/16							
	12/16							
	6/17							
	11/17	1.1J						
	6/18							
	12/18							
	8/19	3.2	1.7J		0.5 J	2.2		0.86 J

TABLE 2
VOC DETECTION SUMMARY
OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

J006295.11

Monitoring Well	Date (mo/yr)	Vinyl Chloride MCL=2 ppb	Cis-1,2-Dichloroethene MCL=70 ppb	Benzene MCL=5 ppb	1,1-Dichloroethane PRG=810 ppb	Toluene MCL=1,000 ppb	Trans-1,2-Dichloroethene MCL=100 ppb	1,4-dioxane MCL not established
MW-C17	08/08							
	10/08							
	3/09							
	6/09							
	8/09							
	11/09							
	3/10							
	6/10	4.2						
	9/10	4.3						
	11/10							
	03/11							
	6/11							
	9/11							
	12/11							
	3/12							
	6/12							
	9/12							
	12/12							
	3/13							
	6/13							
	9/13					5.2		
	12/13							
	4/14	4.8						
	10/14	7.8						
	5/15							
	12/15							
	6/16							
	12/16							
	6/17							
	11/17	2.9						
	6/18							
	12/18	3.5	2.1		0.6 J			3.52
	8/19	2.6	0.9 J			14.2		1.47

TABLE 2
VOC DETECTION SUMMARY
OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

J006295.11

Monitoring Well	Date (mo/yr)	Vinyl Chloride MCL=2 ppb	Cis-1,2-Dichloroethene MCL=70 ppb	Benzene MCL=5 ppb	1,1-Dichloroethane PRG=810 ppb	Toluene MCL=1,000 ppb	Trans-1,2-Dichloroethene MCL=100 ppb	1,4-dioxane MCL not established
MW-C18	12/15							
	6/16							0.6J
	12/16							
	6/17							
	11/17							
	6/18							
	12/18							
	8/19							
not sampled due to flooding								
MW-C19	12/15							
	6/16							0.6J
	12/16							
	6/17							
	11/17							
	6/18							
	12/18							
	8/19							
not sampled due to flooding								
City Wells								
W-4	6/18							
	12/18							
	8/19							NS
W-5	6/18							
	12/18							
	8/19							NS
W-6	6/18							
	12/18							
	8/19							NS
W-7	6/18							NS
	12/18							NS
	8/19							NS
W-8	6/18							NS
	12/18							NS
	8/19	0.4 J	0.4 J					

TABLE 2
VOC DETECTION SUMMARY
OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

J006295.11

Monitoring Well	Date (mo/yr)	Vinyl Chloride MCL=2 ppb	Cis-1,2-Dichloroethene MCL=70 ppb	Benzene MCL=5 ppb	1,1-Dichloroethane PRG=810 ppb	Toluene MCL=1,000 ppb	Trans-1,2-Dichloroethene MCL=100 ppb	1,4-dioxane MCL not established
Radial Well (W-9)	6/18							
	12/18							
	8/19							
W-10	6/18							
	12/18					0.2 J / 0.1 J		
	8/19							1.26
Effluent	6/18							
	12/18							
	8/19							

Notes:

J = Estimated value below the reporting limit.

NT = Not tested

NS = Not sampled

Blank indicates parameter not detected.

The following non-target VOCs were detected: 1,2,4-trimethylbenzene (0.1 J at MW-C16), 2-butanone (1.4 J at MW-C6), ethyl acetate (2.3 J at MW-C5), and hexachloroethane (18.5 at MW-C10 and 18.6 at MW-C14).

PRG = Preliminary Remediation Goal, USEPA Region 9

Shading indicates the concentration exceeds the MCL.

Historic detections at City Wells W-4, W-5, and W-6 are from the North Plume which has a source located at the Ameren Huster Road Substation. Table 3 also contains City Well information. City Well data added to Table 2 starting with the June 2018 sampling event.

TABLE 3
SUMMARY OF CITY OF ST. CHARLES SAMPLING LOCATIONS
OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

J006295.11

Sampling Event	Sampling Locations	Remarks
Third Quarter 2008	Treatment Plant Effluent, radial well, City Well W-4 and W-8	VOCs not detected
Fourth Quarter 2008	Treatment Plant Effluent, radial well, City Well W-4 and W-6	VOCs not detected
First Quarter 2009	Treatment Plant Effluent, radial well, City Well W-4 and W-5	VOCs not detected
Second Quarter 2009	Treatment Plant Effluent, radial well, City Well W-4 and W-7	VOCs not detected
Third Quarter 2009	Treatment Plant Effluent, radial well, City Well W-4 and W-8	VOCs not detected
Fourth Quarter 2009	Treatment Plant Effluent, radial well, City Well W-4 and W-8	VOCs not detected
First Quarter 2010	Treatment Plant Effluent, radial well, City Well W-4 and W-6	VOCs not detected
Second Quarter 2010	Treatment Plant Effluent, radial well, City Well W-4 and W-5	City Well W-5: cis-1,2-dichloroethene (cis-1,2-DCE) and vinyl chloride (VC) detected at 6.9 parts per billion (ppb) and 0.9 J ppb, respectively. Other samples non-detect.
Third Quarter 2010	Treatment Plant Effluent, radial well, City Well W-5 and W-7	City Well W-5: cis-1,2-DCE detected at 13.8 ppb. Other samples non-detect.
Fourth Quarter 2010	Treatment Plant Effluent, radial well, City Well W-5, W-6 and W-8	City Well W-5 - cis-1,2-DCE detected at 13.4 ppb. Resampled City Well W-5 on 11-19-10. Cis-1,2-DCE detected at 11.3 ppb. Other samples non-detect.
First Quarter 2011 (3/24/11)	Treatment Plant Effluent, radial well, City Well W-5 and W-7	VOCs not detected
Verification Sampling (4/4/11)	City Well W-6 and W-8	VOCs not detected
Second Quarter 2011 (6/16/11)	Treatment Plant Effluent, radial well, City Well W-5, W-6, W-7, and W-8	VOCs not detected
Third Quarter 2011 (9/29/11)	Treatment Plant Effluent, radial well, City Well W-5, W-6, W-7, and W-8	City Well W-5: cis-1,2-DCE detected at 5.2/5.3 ppb. Other samples non-detect.
Fourth Quarter 2011 (12/15/11)	Treatment Plant Effluent, City Well W-6, W-8, and radial well (W-9)	VOCs not detected
First Quarter 2012 (3/15/12)	Treatment Plant Effluent, City Well W-6, W-8, and radial well (W-9)	VOCs not detected
Second Quarter 2012 (6/28/12)	Treatment Plant Effluent, City Well W-6, W-8, and radial well (W-9)	VOCs not detected
Third Quarter 2012 (9/27/12)	Treatment Plant Effluent, City Well W-6, W-8, and radial well (W-9)	VOCs not detected
Fourth Quarter 2012 (12/13/12)	Treatment Plant Effluent, City Well W-6, W-8, and radial well (W-9)	VOCs not detected
First Quarter 2013 (3/22/13)	Treatment Plant Effluent, City Well W-6 and radial well (W-9)	VOCs not detected
Second Quarter 2013 (6/21/13)	Treatment Plant Effluent, City Well W-6, W-7, W-8, and radial well (W-9)	Treatment Plant Effluent: Chloroform detected at 1.5 J ppb which is below the laboratory reporting limits of 5 ppb. Other samples were non-detect.
Third Quarter 2013 (9/20/2013)	Treatment Plant Effluent, City Well W-6, W-7, and W-8	VOCs not detected

TABLE 3
SUMMARY OF CITY OF ST. CHARLES SAMPLING LOCATIONS
OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

J006295.11

Sampling Event	Sampling Locations	Remarks
Fourth Quarter 2013 (12/12/2013)	Treatment Plant Effluent, City Well W-6, W-8, and W-9	VOCs not detected
Second Quarter 2014 (5/1/2014)	Treatment Plant Effluent, City Well W-6, W-8, and W-9	VOCs not detected
Fourth Quarter 2014 (10/30/2014)	Treatment Plant Effluent, City Well W-4, W-6, and W-9	VOCs not detected
Second Quarter 2015 (5/14/2015)	Treatment Plant Effluent, City Well W-4, W-6, and W-9	VOCs not detected
Fourth Quarter 2015 (12/3/15 and 12/11/15)	Treatment Plant Effluent, City Well W-4, W-6, and W-9	VOCs not detected
Second Quarter 2016	Treatment Plant Effluent, City Well W-4, W-5, W-6, W-8, and W-9	City Well W-4 - 1,4-dioxane detected at 0.63 J ppb
Fourth Quarter 2016	Treatment Plant Effluent, City Well W-8 and W-10	Treatment Plant Effluent: Chloroform detected at 1.0 J ppb which is below the laboratory reporting limits of 5 ppb. Other samples were non-detect.
Second Quarter 2017	Treatment Plant Effluent, City Wells W-4, W-5, W-8, W-9, and W-10	Treatment Plant Effluent: Chloroform detected at 2.4 J ppb which is below the laboratory reporting limits of 5 ppb. Other samples were non-detect.
Fourth Quarter 2017	Treatment Plant Effluent, City Wells W-6 and W-8	VOCs not detected
Second Quarter 2018	Treatment Plant Effluent, City Wells W-4, W-5, W-6, W-9 and W-10.	Treatment Plant Effluent: m,p-Xylenes detected at 0.2 J. City Well W-10: Tetrachloroethene detected at 0.1 J. VOCs were not detected in other samples.
Fourth Quarter 2018*	Treatment Plant Effluent, City Wells W-4, W-5, W-6, and W-10, Radial Well	Treatment Plant Effluent: Acetone (5.2 J), bromodichloromethane (0.6 J), and chloroform (3.3). City Well W-10: Toluene (0.2 J).
Third Quarter 2019	Treatment Plant Effluent, City Wells W-8, W-9 and W-10	Treatment Plant Effluent: Acetone (8.0 J), chlorobenzene (0.4 J). City Well 8: Acetone (5.1 J), cis-1,2-dichloroethene (0.4 J), methyl tert butyl ether (0.1 J), vinyl chloride (0.4 J). City Well W-10: 1,4-Dioxane (1.26), acetone (4.7 J). Radial Well (W-9): Acetone (4.4 J). 

J - analyte detected below reporting limits.

Historic detections at City Wells W-4, W-5, and W-6 are from the North Plume which has a source located at the Ameren Huster Road Substation.

TABLE 4
GEOCHEMICAL INDICATOR PARAMETER SUMMARY
OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

J006295.11

Monitoring Well	Date (mo/yr)	Dissolved Oxygen (mg/l)	ORP (mV)	Nitrate (mg/l)	Sulfate (mg/l)	Ferrous Iron (mg/l)	Chloride (mg/l)	Carbon Dioxide (mg/l)	Dissolved Organic Carbon (mg/l)	Ethane (µg/l)	Ethene (µg/l)	Methane (µg/l)
MW-C1	08/08	1.8	-140	0.037	79	0.8	95	75.2	3.1	<4.0	<6.0	3.3
	10/08	2.5	-159	<0.005	71	7.1	101	6.3	2.2	<4.0	<6.0	7.4
	03/09	NT	-102	0.012	68	4.9	81	34.4	3.2	<4.0	<6.0	12.3
	06/09	<0.1	-134	<0.050	66	7.3	97	55.7	2.6	<4.0	<6.0	9.6
	08/09	1.1	-159	<0.050	83	6.5	96	42.7	7.4	<4.0	<6.0	22.8
	11/09	0.98	-126	0.014J	78	6	78	35.9	3.2	<4.0	<6.0	14.5
	03/10	NT	60	0.240	70	2	77	22.3	2.3	<4.0	<6.0	4.4
	06/10	4.36	196	<0.050	70	6.0	92	50.1	1.9	<4.0	<6.0	4.6
	09/10	<0.1	-96	<0.050	71	8.9	104	68.9	2.3	<4.0	<6.0	<2.0
	11/10	<0.1	-120	<0.050	71	7.8	95	41.5	3.0	<4.0	<6.0	7.9
	03/11	<0.1	NT	<0.050	79	6.9	93	47.9	2.0	<4.0	<6.0	10.8
	06/11	<0.1	-96	<0.050	80	6.4	81	41.6	2.5	<4.0	<6.0	51.1
	09/11	<0.1	-100	<0.050	55	5.4	79	44.1	2.2	<4.0	<6.0	54.9
	12/11	<0.1	-193	<0.050	60	4.4	103	69.9	2.0	<40	<60	24.3
	03/12	1.99	-81	0.191H	32	5.2	76	67.9	2.0	<4.0	<6.0	22.3
	06/12	<0.1	-76	<0.0050	68	7.1	99	103	1.0	<4.0	<6.0	15.3
	09/12	<0.1	-101	<0.050	65	11	87	88	<1.0	<4.0	<6.0	12.1
	12/12	<0.1	-85	<0.050	58	7.6	91	55	1.1	<4.0	<6.0	11.9
	3/13	<0.1	-117	<0.050	67	6.4	63	63.3	4.1	<4.0	<6.0	23.3
	6/13	Not Sampled Due To Flooding										
	9/13	0.40	-113	<0.05	73	7.6	80	44.7	1	<4	<6	6.7
	12/13	0.38	-110.3	<0.05	71	14	71	55.3	1.1	<4	<6	3.2
	4/14	0.11	-80.5	<0.05	83	5.3	43	53.4	5.2	<4	<6	32.6
	10/14	0.01	-103	<0.05	56	6.7	80	56.6	1.1	<4	<6	15.4
	5/15	0.01	75.22	<0.05	76	6.4	76	78.8	1.6	<4	<6	4.4
	12/15	<0.1	-115	<0.05	22	7.3	20	39.6	2.1	<4	<6	33.3
	6/16	<0.1	-65	0.076	61	5.7	70	34.4	2.1	<4	<6	10
	12/16	<0.1	-68.16	0.021J	60	5.8	85	81.4	1.6	<4	<6	15.4
	6/17	0.05	-65.54	<0.050	55	5.6	100	52.5	1.8	<4.0	<6.0	21.5
	11/17	<0.1	-59.86	0.041J	94	3.5	62	43.4	2.1	<4	<6	11.7
	6/18	<0.1	-40.25	0.020 J	49	5.5	55	53.6	3.0	<7.0	<10.0	12.9
	12/18	<0.1	-145.29	<0.050	47	3.4	78	33.8	2.0	<7.0	<10.0	9.0
	8/19	1.17	155.7	0.034J	59	6.6	84	27.8	2.1	<7.0	<10.0	31.8
	6/13	Not Sampled Due To Flooding										
MW-C2	08/08	0.6	-174	0.026	67	0.9	62	35.6	4.4	<4.0	<6.0	10.5
	10/08	2.3	-167	<0.05	51	5.5	45	3.7	4.4	<4.0	<6.0	7.9
	03/09	NT	-118	0.115	61	4.4	73	34.1	3.4	<4.0	<6.0	17.3
	06/09	<0.1	-159	<0.050	40	8.3	66	37.5	3.8	<4.0	<6.0	30.7
	08/09	1.5	-161	<0.050	51	5	40	23.4	8.0	<4.0	<6.0	15.8
	11/09	0.94	-147	<0.050	62	4.8	43	30.8	4.0	<4.0	<6.0	19.2
	03/10	<0.1	-150	<0.050	54	5.2	60	18.0	3.4	<4.0	<6.0	11.5
	06/10	4.11	180	<0.050	37	6.1	48.9	48.9	3.2	<20.0	<30.0	71.5
	09/10	<0.01	-94	<0.050	34	6.9	45	58.7	3.3	<4.0	<6.0	55.4
	11/10	<0.01	-137	0.070	29	7	28	55.2	4.4	<4.0	<6.0	48.4
	03/11	<0.1	NT	<0.050	34	7.3	40	39.6	3.3	<4.0	<6.0	49.9
	06/11	<0.1	-111	<0.050	33	7.4	21	34.5	3.4	<4.0	<6.0	122.0
	09/11	<0.1	-98	<0.050	30	8	28	43.6	2.2	<4.0	<6.0	82.6
	12/11	<0.1	-212	<0.050	29	5.5	40	68.3	2.8	<40.0	<60.0	57.7
	03/12	1.28	-50	<0.050	29	6.3	32	66.0	2.5	<4.0	<6.0	135.0
	06/12	<0.1	-109	<0.050	24	7.1	31	88.8	1.9	<4.0	<6.0	39.7
	09/12	<0.1	-106	<0.050	28	14	29	70.7	1.7	<4.0	<6.0	40.4
	12/12	<0.1	-49	<0.050	22	8.2	37	48.0	1.7	<4.0	<6.0	62.8
	3/13	<0.1	-117	<0.050	27	7.2	23	46.3	2.2	<4.0	<6.0	38.9
	6/13	Not Sampled Due To Flooding										
MW-C3	9/13	0.48	-120	<0.05	33	8.2	40	40	1.8	<4	<6	26.8
	12/13	0.35	-115.2	<0.05	32	15	38	46.6	1.9	<4	<6	17.6
	4/14	0.08	-94.6	<0.05	44	7.3	27	52.7	1.8	<4	<6	32.3
	10/14	0.02	-93	0.079	36	6.8	43	48.7	1.9	<4	<6	16.5
	5/15	0.04	-99.39	<0.05	28	7.4	31	65.9	1.8	<4	<6	80.5
	12/15	<0.1	-80	<0.05	51	6.2	70	55.5	2.1	<4	<6	22.4
	6/16	<0.1	-73	0.012J	37	4.2	49	54.6	2.2	<4	<6	20.5
	12/16	<0.1	-86.56	0.013J	34	7.7	48	61.6	2.0	<4	<6	32.4
	6/17	<0.1	-96.73	<0.050	34	7.5	43	70.9	2.0	<4.0	<6.0	4.8
	11/17	<0.1	-39.80	<0.05	26	6.4	32	76.0	1.8	<4.0	<6.0	29.0
	6/18	<0.1	-86.50	0.026 J	32	7.7	23	43.7	2.2	<7.0	<10.0	26.3
	12/18	<0.1	-11.19	<0.050	27	7.1	31	38.6	2.1	<7.0	<10.0	22.9
	8/19	<0.1	-18.50	0.041J	24	7.4	19	24.4	1.9	<7.0	<10.0	19.2

TABLE 4
GEOCHEMICAL INDICATOR PARAMETER SUMMARY
OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

J006295.11

Monitoring Well	Date (mo/yr)	Dissolved Oxygen (mg/l)	ORP (mV)	Nitrate (mg/l)	Sulfate (mg/l)	Ferrous Iron (mg/l)	Chloride (mg/l)	Carbon Dioxide (mg/l)	Dissolved Organic Carbon (mg/l)	Ethane (µg/l)	Ethene (µg/l)	Methane (µg/l)
MW-C3	08/08	<0.1	-172	<0.05	6.0	14	22	115	28	<400	<600	5,650
	10/08	2.6	-150	<0.05	6.0	7.7	19	26	6.9	<400	<600	4,230
	03/09	NT	-61	0.041J	53	1.3	28	16.9	4.5	<200	<300	492
	06/09	NT	-172	<0.050	32	2.1	22	24	3.3	<20	<30	930
	08/09	1.8	-137	<0.050	61	2.8	23	28.6	7.7	<4.0	<6.0	326
	11/09	NT	-125	<0.050	73	2.7	23	35.3	3.6	<4.0	<6.0	66.5
	03/10	<0.1	-223	0.024J	61	3.0	22	25.6	2.5	<40	<60	275
	06/10	<0.1	-128	<0.050	64	2.9	21	36.5	2.0	<4.0	<6.0	22.8
	09/10	<0.1	-94	<0.050	47	5.3	18	40.7	2.7	<4.0	<6.0	44.65
	11/10	<0.1	-7	<0.050	69	3.9	27	43.0	2.5	<4.0	<6.0	51.30
	03/11	<0.1	NT	<0.050	72	3.9	27	28.8	2.4	<4.0	<6.0	87.40
	06/11	<0.1	-88	<0.050	82	2.8	29	33.6	1.9	<4.0	<6.0	133
	09/11	<0.1	-89	<0.050	48	5.4	24	40.2	1.8	<4.0	<6.0	67.1
	12/11	<0.1	-197	<0.050	52	5.1	25	63.0	2.2	<40	<60	82.0
	03/12	1.11	-76	<0.050H	43	4.4	23	60.6	1.9	<4.0	<6.0	168.0
	06/12	<0.1	-78	<0.050	50	2.9	28	60.0	1.4	<4.0	<6.0	200.0
	09/12	<0.1	-86	<0.050	43	6.9	23	72.5	1.3	<4.0	<6.0	134.0
	12/12	<0.1	-98	<0.050	61	6.0	27	56.2	1.5	<4.0	<6.0	167.0
	3/13	<0.1	-106	<0.050	58	5.9	26	46.0	1.7	<4.0	<6.0	43.7
	6/13	<0.1	8	<0.05	48	3.8	26	29.0	1.2	<20	<30	47.6
	9/13	0.91	-131	<0.05	66	6.7	25	30.4	<5	<4	<6	49.7
	12/13	0.37	-137.3	<0.05	82	12.0	41	27.3	1.2	<4	<6	21.4
	4/14	0.05	-77.4	<0.05	50	4.9	28	27.6	1.6	<4	<6	35.6
	10/14	0.07	-105	<0.05	45	8.0	24	36.3	1.3	<4	<6	80.7
	5/15	0.03	-74.36	<0.05	32	4.4	27	47.7	1.7	<4	<6	33.9
	12/15	<0.1	-113	<0.05	59	6.0	23	31.8	1.6	<4	<6	26.5
	6/16	<0.1	-82	0.012J	60	3.8	30	47.5	1.5	<4	<6	18.6
	12/16	<0.1	-110.17	0.011J	82	7.7	45	41.3	1.1	<4	<6	35.2
	6/17	<0.1	-77.96	0.011J	62	4.3	32	50.8	1.4	<4.0	<6.0	9.4
	11/17	<0.1	-103.85	0.017J	53	6.9	26	32.7	1.2	<4	<6	20
	6/18	0.08	-67.58	0.032	49	5.3	25	32.2	1.5	<7.0	<10.0	26.3
	12/18	<0.1	-26.10	0.019	48	7.7	24	48.6	1.7	<7.0	<10.0	24.3
	8/19	<0.1	-9.30	0.048J	43S	14	28	16.2	2.4	<7.0	<10.0	1000
MW-C4	08/08	2.6	-147	<0.05	5.0	5.3	19	129	38	<400	<600	5,300
	10/08	2.3	-170	<0.05	7.0	9.4	8	53	4.9	<4.0	<6.0	3,510
	03/09	NT	-134	<0.05	10	6.8	11	58.6	3.6	<200	<300	1,630
	06/09	NT	-165	<0.05	10	4.3	10	52	3.4	<200	<300	1,280
	08/09	1.7	-139	<0.050	8	4.1	7	50.2	8.8	<4.0	<6.0	584
	11/09	NT	-122	<0.050	8	4	8	60.6	2.7	<200	<300	536
	03/10	<0.1	-245	<0.050	9	4	8	43.1	2.5	<40	<60	715
	06/10	<0.1	-135	0.015	10	3.3	8	63.5	2.4	<40	<60	577
	09/10	<0.01	-101	<0.050	9	5.3	6	54.0	3.1	<4.0	<6.0	242
	11/10	<0.01	-106	<0.050	8	5.0	7	55.0	3.6	<40.0	<60.0	292
	03/11	<0.1	NT	<0.050	18	3.9	10	36.1	2.3	<40.0	<60.0	322
	06/11	<0.1	-76	<0.050	26	4.9	8	54.1	2.4	<4.0	<6.0	314
	09/11	<0.1	-102	<0.050	18	4.6	12	41.8	2.0	<4.0	<6.0	337
	12/11	<0.1	-198	<0.050	<10	2.6	9	82.9	2.6	<40.0	<60.0	475
	03/12	0.09	-120	<0.050H	11	3.4	11	65.5	2.2	<40.0	<60.0	553
	06/12	<0.1	-113	<0.050	<10	2.4	11	89.9	7.9	<4.0	<6.0	1,940
	09/12	<0.1	-115	0.118	15	8.3	9	66.2	2.0	<4.0	<6.0	489
	12/12	<0.1	-51	<0.050	13	5.6	10	67.4	1.9	<4.0	<6.0	98.2
	3/13	<0.1	-117	<0.050	19	5.5	9	56.4	2.1	<4.0	<6.0	69.0
	6/13	0.77	-46	0.44	18	4.2	10	27.0	1.4	<20	<30	25.1
	9/13	0.69	-120	<0.05	17	7.8	10	41.2	<10	<4	<6	51.1
	12/13	0.37	-114.4	<0.05	15	10.0	13	38.1	1.9	<4	<6	42.9
	4/14	0.05	-86.6	<0.05	23	6.7	13	44	1.8	<4	<6	67.1
	10/14	0.04	-113	<0.05	15	9.6	16	47	1.6	<4	<6	121.0
	5/15	0.01	-89.9	<0.05	24	6.2	9	55	1.7	<4	<6	29.0
	12/15	<0.1	-107	0.01	18	5.8	8	46.4	2.0	<4	<6	26.6
	6/16	<0.1	-96	0.018J	18	5.8	10	65.9	1.8	<4	<6	29.2
	12/16	<0.1	-37.49	0.074	17	6	10	61.8	1.9	<4	<6	53.6
	6/17	<0.1	-98.24	<0.050	15	7.2	10	71.5	1.8	<4.0	<6.0	33.0
	11/17	<0.1	-108.08	0.01J	21	6.9	10	58.7	1.6	<4	<6	27.9
	6/18	0.04	-91.99	0.022 J	22	7.2	12	48.2	1.8	<7.0	<10.0	23.0
	12/18	<0.1	-43.62	0.018 J	18 S	6.9	11	49.2	1.7	<7.0	<10.0	23.6
	8/19	<0.1	18.2	0.042J	24	7.9	18	19.9	3.0	<7.0	<10.0	1070

TABLE 4
GEOCHEMICAL INDICATOR PARAMETER SUMMARY
OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

J006295.11

Monitoring Well	Date (mo/yr)	Dissolved Oxygen (mg/l)	ORP (mV)	Nitrate (mg/l)	Sulfate (mg/l)	Ferrous Iron (mg/l)	Chloride (mg/l)	Carbon Dioxide (mg/l)	Dissolved Organic Carbon (mg/l)	Ethane (µg/l)	Ethene (µg/l)	Methane (µg/l)
MW-C5	08/08	<0.1	-136	<0.05	71	3.4	13	33.6	2.4	<4.0	<6.0	4.7
	10/08	2.4	-142	<0.05	62	5.5	11	23.8	2.1	<4.0	<6.0	4.3
	03/09	NT	-60	<0.05	60	1.5	11	24	1.6	<4.0	<6.0	11.8
	06/09	NT	-126	0.010J	54	2.1	11	31.9	4.4	<4.0	<6.0	3.1
	08/09	2.5	-135	<0.050	60	4.8	9	24.7	3.0	<4.0	<6.0	2.7
	11/09	0.35	-117	<0.050	71	4	11	36.3	1.6	<4.0	<6.0	9.9
	03/10	0.28	-61	0.022J	61	3.6	10	33.8	1.3	<4.0	<6.0	5.1
	06/10	<0.1	-104	<0.050	65	2.4	10	32.0	1.2	<4.0	<6.0	<2.0
	09/10	<0.1	-80	<0.050	60	4.3	12	37.6	2.1	<4.0	<6.0	2.2
	11/10	<0.1	-105	<0.050	64	4.3	11	28.1	2.2	<4.0	<6.0	<2.0
	03/11	<0.1	NT	<0.050	69	3.3	15	21.5	1.2	<4.0	<6.0	14.3
	06/11	<0.1	-81	<0.050	55	3.9	10	26.1	2.0	<4.0	<6.0	6.0
	09/11	<0.1	-89	<0.050	49	3.9	14	29.7	1.1	<4.0	<6.0	5.6
	12/11	<0.1	-192	<0.050	47	3.6	14	28.9	1.1	<4.0	<6.0	6.6
	03/12	0.48	-10	<0.050H	53	4.4	13	47.1	1.2	<4.0	<6.0	9.5
	06/12	2.42	-47	<0.050	47	1.6	16	43.4	1.1	<4.0	<6.0	15.9
	09/12	<0.1	-63	<0.050	48	16	11	38.9	<1.0	<4.0	<6.0	8.7
	12/12	<0.1	-76	<0.050	50	5.1	12	47.9	<1.0	<4.0	<6.0	5.0
	3/13	<0.1	-103	<0.050	50	5	11	47.2	1.0	<4.0	<6.0	4.1
	6/13	1.41	15	<0.05	45	2	14	28.6	<1	<4	<6	5.3
	9/13	0.30	-110	<0.05	44	4.2	21	42.4	<1	<4	<6	4.8
	12/13	0.10	-62.3	<0.05	45	4.6	16	31.4	1.0	<4	<6	4.0
	4/14	0.49	-26.2	<0.05	43	2.6	14	27.3	<1	<4	<6	5.3
	10/14	0.02	-54	<0.05	40	5.5	16	30.2	<1	<4	<6	8.1
	5/15	0.41	-27.15	<0.05	38	1.2	16	35.0	<1	<4	<6	2.6
	12/15	<0.1	-94	0.027J	44	4.6	14	63	0.9	<4	<6	3.3
	6/16	<0.1	-43	0.026J	41	2.1	14	37	0.9J	<4	<6	2.2
	11/16	<0.1	-70.5	0.016J	46	5.2S	15	32.5	0.9J	<4	<6	3.2
	6/17	<0.1	-47.19	0.041J	41	3.4	15	40.0	0.8J	<4.0	<6.0	5.7
	11/17	<0.1	-48.51	0.043J	42	4.9	14	44.8	0.9J	<4	<6	5.2
	6/18	0.12	168.41	0.025 J	40	4.4	15	26.6	0.9 J	<7.0	<10.0	4.5
	12/18	<0.1	39.07	0.012 J	42	4.8	16	30.1	0.8 J	<7.0	<10.0	5.3
	8/19	<0.1	204.1	0.028J	34	4.9	16	14.8	0.9J	<7.0	<10.0	4.6
MW-C6	08/08	<0.1	-166	<0.05	11	7.3	15	103	21	<400	<600	5,020
	10/08	2.2	-179	<0.05	37	3.1	11	35.9	2.2	<200	<300	1,290
	03/09	NT	-123	<0.05	60	8.1	10	11.7	2.2	<4.0	<6.0	26.1
	06/09	NT	-124	0.010J	48	1.9	11	32.9	4.2	<4.0	<6.0	204
	08/09	2.2	-156	<0.050	62	4.4	11	29.3	2.8	<4.0	<6.0	17.2
	11/09	0.35	-136	<0.050	50	4.9	10	36.3	1.7	<4.0	<6.0	5.1
	03/10	<0.1	-168	0.014	61	4.5	10	41.1	1.2	<4.0	<6.0	3.0
	06/10	<0.1	-143	<0.050	58	4.1	12	37.3	1.5	<4.0	<6.0	4.1
	09/10	<0.1	-65	<0.050	65	4.4	11	38.5	2.6	<4.0	<6.0	5.9
	11/10	<0.1	-121	<0.050	62	5.3	10	29.0	2.1	<4.0	<6.0	49.1
	03/11	<0.1	NT	<0.050	70	3.9	13	19.9	1.5	<4.0	<6.0	48.5
	06/11	<0.1	-83	<0.050	58	2.8	10	25.3	2.2	<4.0	<6.0	19.5
	09/11	<0.1	-125	<0.050	44	8	16	39.0	1.4	<4.0	<6.0	52.6
	12/11	<0.1	-205	<0.050	47	4.3	13	38.1	1.3	<4.0	<6.0	9.4
	03/12	0.24	-64	<0.050	55	4.7	12	46.5	1.1	<4.0	<6.0	16.2
	06/12	<0.1	-94	<0.050	49	4.1	13	45.4	<1.0	<4.0	<6.0	4.4
	09/12	<0.1	-99	<0.050	48	5	12	44.9	<1.0	<4.0	<6.0	49.2
	12/12	<0.1	-74	<0.050	46	5.3	11	51.6	1.0	<4.0	<6.0	58.4
	3/13	<0.1	-107	<0.050	51	4.2	12	55.4	1.0	<4.0	<6.0	16.5
	6/13	0.86	-70	<0.05	44	4.9	13	26.9	<1	<4	<6	6.6
	9/13	0.49	-120	<0.05	48	5	17	45.4	<1	<4	<6	3.6
	12/13	0.06	-40.6	<0.05	40	5.4	16	38.2	1.2	<4	<6	59.3
	4/14	0.07	-76.1	<0.05	44	5.6	14	24.4	<1	<4	<6	16.4
	10/14	0.08	-62	<0.05	41	7	14	31.4	<1	<4	<6	12.7
	5/15	0.02	-92.22	<0.05	42	4.9	13	41.5	<1	<4	<6	5.4
	12/15	<0.1	-114	<0.05	45	5.4	20	82.3	1.0	<4	<6	15.0
	6/16	<0.1	-75	0.010J	39	4.6	14	42.3	1.2	<4	<6	22.8
	11/16	0.68	-78	0.017J	46	4.9	13	34.1	0.9J	<4	<6	5.3
	6/17	<0.1	-72.95	0.029J	46	5.2	16	40.7	0.8J	<4.0	<6.0	6.7
	11/17	<0.1	-56.41	0.022J	43	4.0	14	45.8	0.9J	<4	<6	4.9
	6/18	0.12	130.84	<0.050	42	4.7	16	33.3	0.9 J	<7.0	<10.0	5.0
	12/18	0.16	22.21	0.026 J	40	5.1	16	36.9	0.9 J	<7.0	<10.0	7.4
	8/19	<0.1	-116.6	0.055	30	24	20	35.5	4	<7.0	<10.0	1050

TABLE 4
GEOCHEMICAL INDICATOR PARAMETER SUMMARY
OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

J006295.11

Monitoring Well	Date (mo/yr)	Dissolved Oxygen (mg/l)	ORP (mV)	Nitrate (mg/l)	Sulfate (mg/l)	Ferrous Iron (mg/l)	Chloride (mg/l)	Carbon Dioxide (mg/l)	Dissolved Organic Carbon (mg/l)	Ethane (µg/l)	Ethene (µg/l)	Methane (µg/l)
MW-C7	08/08	0.4	-90	<0.05	64	3.0	29	61.6	3.2	<4.0	<6.0	4.8
	10/08	2.9	-89	0.012	59	3.4	40	26.5	1.5	<4.0	<6.0	11.6
	03/09	NT	-84	<0.05	56	12	30	41.3	1.7	<4.0	<6.0	6.0
	06/09	<0.1	-94	<0.05	41	3.2	32	49.3	4.5	<4.0	<6.0	12.5
	08/09	2.1	-99	<0.05	53	3.8	33	49.3	5.9	<4.0	<6.0	14.3
	11/09	0.79	-69	<0.050	59	3.1	33	56.5	1.8	<4.0	<6.0	19.8
	03/10	0.01	-39	0.011J	52	2.3	35	28.0	1.4	<4.0	<6.0	38.8
	06/10	<0.1	-48	<0.050	59	5.3	38	48.1	2.1	<4.0	<6.0	6.2
	09/10	<0.1	-22	<0.050	38	3.5	35	66.4	2.6	<4.0	<6.0	37.6
	11/10	<0.1	-61	<0.050	36	2.9	36	40.9	2.2	<4.0	<6.0	21.4
	03/11	<0.1	NT	<0.050	36	4.7	33	39.6	2.1	<4.0	<6.0	33.1
	06/11	<0.1	-7	<0.050	35	3.5	33	51	1.8	<4.0	<6.0	60.9
	09/11	<0.1	-12	<0.200	32	2.8	34	52.4	1.2	<4.0	<6.0	50.8
	12/11	<0.1	-129	<0.050	30	2.4	33	78.1	1.6	<40	<60	58.9
	03/12	<0.1	-31	<0.050	32	3.0	35	54.9	1.4	<4.0	<6.0	64.6
	06/12	<0.1	-33	<0.050	31	1.1	37	87	1.1	<4.0	<6.0	21.7
	09/12	<0.1	-59	<0.050	32	16.0	34	76.9	<1.0	<4.0	<6.0	83.9
	12/12	<0.1	10	<0.050	24	6.1	35	37.4	<1.0	<4.0	<6.0	60.0
	3/13	<0.1	-51	<0.050	34	2.9	38	56.6	1.1	<4.0	<6.0	17.7
	6/13	0.52	-61	<0.05	30	7.1	31	36.2	<1	<4	<6	10.4
	9/13	0.36	-62	<0.05	30	3.6	38	57	<5	<4	<6	13.4
	12/13	0.38	-60.4	<0.05	30	3.2	33	39	1.1	<4	<6	13.6
	4/14	0.11	-15.5	<0.05	33	2.7	33	54	<1	<4	<6	15.9
	10/14	0.01	-30	<0.05	27	3.2	34	46.1	<1	<4	<6	20.0
	5/15	0.13	-7.92	<0.05	29	2.2	37	47.5	1	<4	<6	15.7
	12/15	0.5	-84	<0.05	29	3.1	47	48.7	1.2	<4	<6	17.9
	6/16	<0.1	-9.2	0.011J	32	2.2	38	57.1	1.4	<4	<6	15.0
	11/16	<0.1	-21.12	0.011J	28	3.2	43	49.8	1	<4	<6	29.6
	6/17	1.21	114.29	0.029J	28	0.38	44	54.6	0.8J	<4.0	<6.0	11.6
	11/17	<0.1	71.42	<0.05	27	2.7	48	67.5	1.0	<4.0	<6.0	27.7
	6/18	0.22	25.57	0.011J	30	8.0	50	48.5	0.9J	<7.0	<10.0	17.5
	12/18	<0.1	11.56	0.013J	35	4.1	50	54.0	0.9J	<7.0	<10.0	11.5
	8/19	<0.1	214.1	0.033J	37	4.0	45	36.8	1.0	<7.0	<10.0	13.5
MW-C8	08/08	<0.1	-150	<0.05	76	6.3	16	48.7	3.3	<4.0	<6.0	54.2
	10/08	2.2	-152	0.01J	77	6.0	14	9.8	2.0	<4.0	3.5J	45.8
	03/09	NT	-82	<0.05	57	3.6	25	39.4	1.6	<4.0	<6.0	57.7
	06/09	NT	-137	<0.050	72	5.2	15	33.8	1.9	<4.0	3.3J	48.0
	08/09	2.4	-150	<0.05	96	7.6	16	34.3	6.3	<4.0	4.0J	63.5
	11/09	0.40	-139	<0.050	60	6.9	18	51.6	2.5	<4.0	<6.0	78.3
	03/10	<0.1	-102	<0.050	90	6.6	16	24.3	1.5	<4.0	8.6	68.4
	06/10	<0.1	-137	<0.050	85	5.9	17	35.6	1.7	<4.0	<6.0	23.7
	09/10	<0.1	-98	<0.050	67	6.1	20	46.3	2.9	<4.0	13.9	184.0
	11/10	<0.1	-82	<0.050	62	5.3	24	39.6	2.5	<4.0	<6.0	59.1
	03/11	<0.1	NT	<0.050	84	5.8	17	29.5	2.5	<4.0	15.6	231
	06/11	<0.1	-89	<0.050	68	7.1	13	32.9	1.8	8.0	15.7	233
	09/11	<0.1	-99	<0.050	103	6.9	18	35.1	1.4	<40.0	<60.0	423
	12/11	<0.1	-186	<0.050	95	7.3	18	44.9	1.8	<40.0	<60.0	110
	03/12	<0.1	-90	<0.050	107	6.4	18	41.9	1.4	5.4	9	1170
	06/12	<0.1	0.109	<0.050	97	6.4	21	51.5	1.3	5.0	7.6	148
	09/12	<0.1	-77	<0.050	75	8	15	64.7	<1.0	6.7	6.9	156
	12/12	<0.1	-60	<0.050	88	6.9	20	33.4	1.2	8.0	16.9	155
	3/13	<0.1	-96	<0.050	82	6.3	19	38.7	1.4	5.4	6.8	182
	6/13	0.94	-124	<0.05	66	6.7	17	44.2	1.3	11.1	13.4	77.4
	9/13	0.52	-58	<0.05	54	4.2	16	42.8	1.1	<4	<6	29.7
	12/13	0.27	-111.6	<0.05	55	12	18	32.3	1.6	<4	<6	54.6
	4/14	0.08	-90.5	<0.05	99	7.2	18	29.9	1.2	13.8	9.7	161
	10/14	0.14	-25	<0.05	81	5.1	20	33.3	1	<40	<60	171
	5/15	0.14	-95.82	<0.05	86	6.4	15	36.2	1.2	7.8	<6	116
	12/15	<0.1	-142	<0.05	138	6.5	17	25.2	1.3	<4	<6	72.4
	6/16	<0.1	-99	0.022J	100	6	20	37.8	1.3	<4	<6	49.6
	11/16	<0.1	-71.12	0.04J	107	5.8S	18	34	1.1	<4	<6	72
	6/17	<0.1	-80.49	<0.050	105	6.6	20	47.3	0.9J	<4.0	<6.0	63.9
	11/17	<0.1	78.91	<0.050	47	11	34	55.9	1.6	<4.0	69.7	885
	6/18	5.53	259.36	0.142	56	6.1	27	34.3	1.1	<7.0	<10.0	<4.0
	12/18	<0.1	-6.71	0.017J	87	6.8	16	35.0	0.9J	<7.0	<10.0	25.5
	8/19	<0.1	60.00	0.032J	82	7.2	16	23.7	1.0	<7.0	11.6	111

TABLE 4
GEOCHEMICAL INDICATOR PARAMETER SUMMARY
OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

J006295.11

Monitoring Well	Date (mo/yr)	Dissolved Oxygen (mg/l)	ORP (mV)	Nitrate (mg/l)	Sulfate (mg/l)	Ferrous Iron (mg/l)	Chloride (mg/l)	Carbon Dioxide (mg/l)	Dissolved Organic Carbon (mg/l)	Ethane (µg/l)	Ethene (µg/l)	Methane (µg/l)
MW-C9	08/08	0.3	-102	0.068	156	0.65	34	29.3	2.9	<4.0	<6.0	<2.0
	10/08	2.0	-151	0.056	153	2.1	34	9.6	1.6	<4.0	<6.0	<2.0
	03/09	NT	-93	0.139	144	1.8	32	21.5	2.2	<4.0	<6.0	<2.0
	06/09	NT	-77	0.141	140	1.6	34	12.4	2.2	<4.0	<6.0	1.4J
	08/09	2.4	-122	0.081	157	1.9	34	25.2	8.0	<4.0	<6.0	<2.0
	11/09	0.63	-115	0.179	158	1.8	34	30.7	1.7	<4.0	<6.0	<2.0
	03/10	0.06	-24	0.891	152	0.93	38	15.6	1.4	<4.0	<6.0	<2.0
	06/10	4.20	153	0.329	155	1.5	38	30.7	1.5	<4.0	<6.0	<2.0
	09/10	<0.1	-33	<0.050	146	2.1	38	33.1	2.3	<4.0	<6.0	<2.0
	11/10	<0.1	-91	0.102	158	1.3	41	29.3	2.2	<4.0	<6.0	<2.0
	03/11	0.70	NT	0.447	164	0.51	39	17.8	1.6	<4.0	<6.0	<2.0
	06/11	<0.1	-59	0.142	165	1.7	38	21.4	2	<4.0	<6.0	<2.0
	09/11	<0.1	-83	<0.050	152	1.1	40	23.6	1.1	<4.0	<6.0	<2.0
	12/11	<0.1	-159	0.079	150	1.5	41	27.4	1.1	<4.0	<6.0	<2.0
	03/12	0.06	-20	0.110SH	152	1.4	41	31.8	1.0	<4.0	<6.0	2.5
	06/12	<0.1	-74	0.378	147	0.75	46	37.8	<1.0	<4.0	<6.0	<2.0
	09/12	<0.1	-56	0.094	169	0.88	46	31.4	1.1	<4.0	<6.0	<2.0
	12/12	<0.1	60	<0.050	175	1.7	51	33.3	<1.0	<4.0	<6.0	<2.0
	3/13	<0.1	-77	<0.050	152	1.4	42	10.2	<1.0	<4.0	<6.0	<2.0
	6/13	<0.1	157	0.98	159	0.018	45	17.9	<1	<4	<6	<2
	9/13	1.05	-29	0.379	126	0.8	43	33.8	<1	<4	<6	2
	12/13	0.29	-60.3	0.299	151	0.97	46	20.5	<1	<4	<6	<2
	4/14	0.23	3.1	<0.05	146	0.18	46	21	<1	<4	<6	<2
	10/14	0.08	24	0.165	156	0.98	39	23.1	<1	<4	<6	<2
	5/15	0.04	-6.23	1.37	165	0.36	43	23	<1	<4	<6	<2
	12/15	<0.1	-42	1.15	156	0.45	47	39	1	<4	<6	<2
	6/16	<0.1	-3	2.15	160	0.17	47	25.2	1	<4	<6	<2
	11/16	<0.1	-6.83	1.55	167	0.4	52	27.8	0.9J	<4	<6	<2
	6/17	<0.1	137.18	2.32	155	0.086	52	46.6	0.8J	<4.0	<6.0	<2.0
	11/17	<0.1	50.88	2.75	149	0.1	50	32.4	0.7J	<4.0	<6.0	<2.0
	6/18	<0.1	125.26	5.80	146	0.10	51	21.8	1.0	<7.0	<10.0	<4.0
	12/18	<0.1	119.74	0.31	160	0.29	49	18.0	0.8J	<7.0	<10.0	<4.0
	8/19	<0.1	458.4	3.13	136	0.04	48	14.5	1.0	<7.0	<10.0	<4.0
MW-C10	08/08	0.5	-167	<0.035	155	8.1	14	47.1	2.5	<4.0	<6.0	<2.0
	10/08	1.6	-176	<0.05	147	9.4	16	28.6	1.5	<4.0	<6.0	3.2
	03/09	NT	-177	<0.05	144	9.4	17	28.1	1.7	<4.0	<6.0	1.3J
	06/09	NT	-120	0.024J	136	8.5	18	25.5	1.6	<4.0	<6.0	2.8
	08/09	2.6	-168	<0.05	151	10	17	32.3	7.3	<4.0	<6.0	2.4
	11/09	0.63	-164	<0.050	157	9.8	16	38	1.6	<4.0	<6.0	2.0
	03/10	<0.1	-182	<0.050	144	9.0	17	20.2	1.8	<4.0	<6.0	2.8
	06/10	3.88	135	<0.050	156	10.0	17	39.4	2.1	<4.0	<6.0	1.1J
	09/10	<0.1	-89	<0.050	142	8.8	18	43.2	2.3	<4.0	<6.0	<2.0
	11/10	<0.1	-126	<0.050	150	8.6	19	35.7	2.1	<4.0	<6.0	<2.0
	03/11	<0.1	NT	<0.50	153	4.7	20	24.9	1.4	<4.0	<6.0	4.8
	06/11	<0.1	-105	<0.050	157	9.2	16	29.2	1.8	<4.0	<6.0	7.3
	09/11	<0.1	-131	<0.050	148	9.4	22	34.3	1.1	<4.0	<6.0	7.6
	12/11	<0.1	-212	<0.050	144	9.5	19	37.1	1.1	<40	<60	37.6
	03/12	<0.1	-72	<0.050H	142	9.0	18	49.3	1.1	<4.0	<6.0	9.1
	06/12	<0.1	-128	<0.050	136	10.0	24	53.1	<1.0	<4.0	<6.0	4.4
	09/12	<0.1	-133	0.304	160	7.9	19	42.3	1	<4.0	<6.0	3.3
	12/12	<0.1	-46	<0.050	162	12.0	20	46.3	<1.0	<4.0	<6.0	4.9
	3/13	<0.1	-115	<0.050	170	8.7	22	23.6	<1.0	<4.0	<6.0	3.5
	6/13	<0.1	-70	<0.05	127	9.4	22	35.2	<1	<4	<6	4.4
	9/13	0.88	-123	<0.05	116	8.4	23	46.7	<1	<4	<6	3.6
	12/13	0.62	-109.8	<0.05	126	8.2	24	34.3	1	<4	<6	2.6
	4/14	0.12	-95.6	<0.05	132	9.7	23	34.6	<1	<4	<6	5.7
	10/14	0.11	-68	<0.05	141	11.0	22	29.7	<1	<4	<6	5
	5/15	0.52	-95.16	<0.05	156	8.4	18	37.1	<1	<4	<6	2.6
	12/15	<0.1	-114	0.068	141	8.7	24	69	1.0	<4	<6	1.9J
	6/16	<0.1	-106	0.024J	144	8.4	29	42.6	1.0J	<4	<6	2.1
	11/16	0.99	115.41	0.31	147	0.34	22	37	0.9J	<4	<6	<2
	6/17	0.03	-87.20	<0.050	132	9.5	24	59.6	0.8J	<4.0	<6.0	4.9
	11/17	<0.1	-59.18	<0.050	129	9.8	23	45.2	1.1	<4	<6	4.6
	6/18	0.09	-80.90	0.010 J	131	9.2	25	35.9	0.9 J	<7.0	<10.0	<4.0
	12/18	<0.1	-46.66	0.016 J	131	9.4	24	38.9	0.9 J	<7.0	<10.0	4.8
	8/19	<0.1	88.50	0.021J	134	10	25	20.3	1.0J	<7.0	<10.0	4.1

TABLE 4
GEOCHEMICAL INDICATOR PARAMETER SUMMARY
OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

Monitoring Well	Date (mo/yr)	Dissolved Oxygen (mg/l)	ORP (mV)	Nitrate (mg/l)	Sulfate (mg/l)	Ferrous Iron (mg/l)	Chloride (mg/l)	Carbon Dioxide (mg/l)	Dissolved Organic Carbon (mg/l)	Ethane (µg/l)	Ethene (µg/l)	Methane (µg/l)
MW-C11	08/08	1.2	-156	<0.05	70	5.6	17	25	3.4	<200	<300	270
	10/08	2.2	-150	0.161	65	7.2	10	10.1	1.9	<40	106	339
	03/09	NT	-144	0.01J	77	5.4	18	26.1	2.2	<4.0	69.6	375
	06/09	<0.1	-145	<0.050	81	4.6	22	36	2.0	<40.0	123	325
	08/09	3.0	-155	<0.05	82	6.2	13	28	2.3	<4.0	22.5	80.8
	11/09	0.36	-70	<0.050	105	5.5	25	47.8	1.6	<4.0	18.3	59.9
	03/10	0.23	-123	0.043J	123	4.9	34	12.9	1.3	<4.0	5.2J	23.0
	06/10	<0.1	-125	<0.050	119	5.2	39	30.2	1.2	<4.0	<6.0	10.4
	09/10	0.2	-91	<0.050	96	5.7	24	32.5	160.0	<4.0	<6.0	31.1
	11/10	<0.1	-127	<0.050	108	6.2	34	26.9	2.2	<4.0	<6.0	20.6
	03/11	<0.1	NT	<0.050	123	3.9	39	19.5	2	<4.0	10.6	28.2
	06/11	<0.1	-111	<0.050	119	4.6	38	36.2	1.5	<4.0	12.0	36.4
	09/11	<0.1	-99	<0.050	107	5.7	39	35.2	1.2	<4.0	13.5	37.4
	12/11	<0.1	-207	<0.050	79	5.9	33	41.3	1.3	<4.0	11.2	29.3
	03/12	<0.1	-73	<0.050H	94	6.2	24	50.5	1.2	<4.0	26	77
	06/12	<0.1	-92	<0.050	104	6.1	38	64.5	1.2	<4.0	10.7	55.5
	09/12	<0.1	-103	0.065	80	9.9	25	47	1	<4.0	7.4	57.8
	12/12	<0.1	-59	<0.200	82	6.9	35	37	<1.0	<4.0	8.1	62.1
	3/13	<0.1	-107	<0.050	80	5.1	26	19.2	1.0	<4.0	17.2	54.9
	6/13	<0.1	-68	<0.50	104	4.1	38	18.7	<1	<20	<30	21.6
	9/13	0.25	-126	<0.05	79	24	28	48.7	<1	<4	<6	15.9
	12/13	0.38	-118.5	<0.05	75	5.9	32	33.7	1.1	<4	<6	16.3
	5/14	0.04	-81.2	<0.05	73	7	31	35.8	1.1	<4	11	22.4
	10/14	0.02	-76	<0.05	71	8.2	27	30.6	<1	<4	12.1	25.6
	5/15	0.02	-85.8	<0.05	111	4.6	45	30.6	<1	<4	6.4	13.5
	12/15	<0.1	-98	<0.05	114	4.6	48	32.3	1.2	<4	<6	5.7
	6/16	<0.1	-96	0.012J	122	4.2	51	39.8	0.9J	<4	<6	3.6
	12/16	<0.1	-80.25	0.015J	119	5	53	41.4	0.8J	<4	<6	3.4
	6/17	<0.1	-42.12	0.013J	103	4.7	57	55.0	0.7J	<4.0	<6.0	5.1
	11/17	<0.1	-31.31	0.02J	78	6.1	39	43.3	0.9J	<4	<6	9.2
	6/18	0.54	-21.98	0.075	77	6.3	34	29.6	1 J	<7.0	<10.0	9.8
	12/18	<0.1	34.5	<0.050	74	6.9	38	34.3	1.1	<7.0	<10.0	6.2
	8/19	<0.1	158.7	<0.050	99	6.1	42	14.0	1.9	<7.0	<10.0	148
MW-C12	08/08	0.6	-172	<0.05	171	8.1	22	49.9	2.7	25	<6.0	36.3
	10/08	2.2	-160	<0.05	157	8.3	19	32.7	1.8	38.2	<6.0	39.8
	03/09	NT	-92	0.144	151	7.3	20	31.1	1.9	27.2	<6.0	30.3
	06/09	<0.1	-161	<0.050	143	8.5	20	46.8	2.1	42.2	<6.0	45.6
	08/09	2.7	-160	<0.05	156	8.8	25	37.8	4.8	27.4	7.7	38.8
	11/09	0.32	-155	<0.05	165	8	20	46.7	1.5	14.5	4.4J	25.4
	03/10	1.34	-93	0.171	150	6.2	22	26.6	1.9	8.2	<6.0	15.6
	06/10	<0.1	-142	<0.050	164	8.4	23	41.4	1.4	4.7	<6.0	9.0
	09/10	<0.1	-105	<0.050	145	7.9	31	38.5	3.2	<4.0	<6.0	7.1
	11/10	<0.1	-16	<0.050	151	7.7	28	34.6	2.4	4.7	<6.0	6.4
	03/11	1.04	NT	0.213	160	6.2	31	28.3	1.7	<4.0	<6.0	24.7
	06/11	<0.1	-104	<0.050	156	8.5	27	38.4	2.0	12.8	<6.0	34.1
	09/11	<0.1	-117	<0.050	157	8.7	40	41	1.2	13.1	<6.0	35.1
	12/11	<0.1	-206	<0.050	137	9.5	50	66.9	1.6	9.1	<6.0	23.9
	03/12	0.69	-46	0.576H	146	3.3	54	435	1.1	11	<6.0	23.0
	06/12	<0.1	-115	0.513	144	6.4	50	56.9	1.1	7.1	<6.0	22.6
	09/12	<0.1	-115	<0.050	164	120	84	41.1	<1.0	17.6	<6.0	58.0
	12/12	<0.1	-79	0.270	177	8.7	91	51.6	1.1	34.7	7.9	53.8
	3/13	<0.1	-116	<0.050	139	35	88	60.5	<1.0	24.8	<6.0	47.1
	6/13	0.92	-77	<0.05	131	9.4	68	40.6	<1	19.1	<6	24.6
	9/13	0.67	-125	<0.05	142	9.1	61	34.3	<1	5.9	<6	11.5
	12/13	0.14	-76	<0.05	131	8.8	97	43.1	<1	12.6	<6	21.8
	5/14	1.30	-44.1	0.64	129	4.8	88	30.4	<1	15.1	<6	21.1
	10/14	0.06	-92	0.078	130	7.3	78	40.3	<1	11.3	<6	16.6
	5/15	1.50	-77.1	0.127	144	7.3	68	50.3	<1	6.1	<6	11.6
	12/15	<0.1	98	0.074	136	8.0	59	29.8	1.2	4.9	<6	9.7
	6/16	<0.1	-78	0.189	133	7.4	68	58.2	1.1	3.4J	<6	6.7
	12/16	0.26	-73.52	0.043J	144	8.4	88	61.8	0.9J	5.5	<6	9.7
	6/17	<0.1	-88.26	0.043J	133	8.8	98	57.8	0.8J	8.5	<6.0	7.4
	11/17	<0.1	-97.33	0.14	120	5.4	116	46.4	0.6J	9.4	<6	8.2
	6/18	0.76	-64.84	0.606	112 S	4.7	146	25.4	0.8 J	<7.0	<10.0	4.2
	12/18	1.25	-26.09	0.289	108	7.0	162	42.4	0.5 J	<7.0	<10.0	4.3
	8/19	<0.1	212.3	0.013J	109	11.0	134	27.6	0.8J	<7.0	<10.0	6.7

TABLE 4
GEOCHEMICAL INDICATOR PARAMETER SUMMARY
OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

J006295.11

Monitoring Well	Date (mo/yr)	Dissolved Oxygen (mg/l)	ORP (mV)	Nitrate (mg/l)	Sulfate (mg/l)	Ferrous Iron (mg/l)	Chloride (mg/l)	Carbon Dioxide (mg/l)	Dissolved Organic Carbon (mg/l)	Ethane (µg/l)	Ethene (µg/l)	Methane (µg/l)
MW-C13	08/08	0.8	-171	<0.05	174	8.4	23	33.9	2.7	21.8	9.0	41.8
	10/08	2.4	-165	<0.05	154	8.5	19	37.0	2.0	43.4	<6.0	46.0
	03/09	NT	-152	<0.05	152	8.6	21	36.0	2.0	28.9	15.8	43.4
	06/09	<0.1	-155	0.046J	142	8.7	24	39.5	2.1	49.7	37.6	70.0
	08/09	2.5	-169	<0.05	149	9.1	27	36.0	2.2	44.4	30.7	71.1
	11/09	0.3	-79	0.138	166	7.3	21	44.0	1.8	13.7	6.7	23.9
	03/10	<0.1	-169	<0.050	145	7.9	23	28.1	2.0	15.4	9.4	29.4
	06/10	<0.1	-143	<0.050	164	8.8	25	44.6	1.7	9.8	7.1	22.3
	09/10	2.60	-117	<0.050	149	8.1	34	46.0	2.6	18.3	14.6	38.7
	11/10	<0.1	-125	<0.050	148	8.3	32	35.8	2.5	15.3	9.8	28.1
	03/11	<0.1	NT	<0.050	161	8.4	34	41.1	3.1	<4.0	24.8	64..9
	06/11	<0.1	-114	<0.050	136	8.5	32	39.3	2.2	69.4	74.8	374
	09/11	<0.1	-139	<0.050	142	9.1	45	42.6	1.3	94.6	98.8	303
	12/11	<0.1	-106	1.09	125	0.77	46	52.3	2.2	<40	<60	23.6
	03/12	0.23	-84	<0.050H	142	8.7	63	68.0	1.2	141	138	352
	06/12	<0.1	-118	<0.050	107	9.3	58	77.9	1.3	112	110	291
	09/12	<0.1	-102	0.053	128	310	64	64.2	<1.0	<4.0	149	459
	12/12	<0.1	-103	<0.050	148	12	85	56.8	<1.0	<400	214	232
	3/13	<0.1	-120	<0.050	135	10	81	59.4	<1.0	102	68.7	220
	6/13	0.52	-120	<0.05	118	9.7	66	53.5	1	151	<150	248
	9/13	1.09	-128	<0.05	109	9.7	57	37.5	<1	50.5	35.5	105
	12/13	0.06	-69.8	<0.05	126	7.8	95	43.0	<1	64.7	46.1	135.0
	5/14	0.04	-93	<0.05	81	10	72	42.2	1.1	142	67.8	340.0
	10/14	0.03	-31	<0.05	114	0.78	78	35.7	<1	143	<60	165.0
	5/15	0.01	-102.57	<0.05	137	9.4	70	47.1	1.0	63.9	35.6	114.0
	12/15	<0.1	-114	0.01	109	9.8	57	36.7	1.7	62.7	29.1	179
	6/16	<0.1	-95	0.02J	109	18	70	65.3	1.5	61.1	51.7	152
	12/16	<0.1	-80.57	0.076	135	11	77	54.7	1.1	56.2	28	76.4
	6/17	<0.1	-91	0.068	73	11	80	76.7	1.6	56.0	24.9	142
	11/17	<0.1	-68.56	0.013J	55	11	67	59	1.5	142	40.6	294
	6/18	<0.1	-82.89	0.071	56	11	84	47.6	1.6	125	25.3	259
	12/18	<0.1	-62.63	<0.050	99	10	105	50.0	1.0	120	39.4	161
	8/19	<0.1	50.90	0.061	40S	9.7	77	38.2	3.8	427	<10.0	1020
MW-C14	08/08	1.6	-142	0.946	186	2.5	17	38.2	2.5	<4.0	<6.0	7.9
	10/08	2.8	-136	0.831	171	3.4	14	28.5	1.5	<4.0	<6.0	19.6
	03/09	NT	-66	3.21	152	3	16	24.3	1.6	<4.0	6.9	41.9
	06/09	<0.1	-106	1.22	147	2.1	18	29.9	4.1	<4.0	5.2J	34.9
	08/09	2.4	-99	1.52	174	2.9	18	29.2	4.5	<4.0	<6.0	10.9
	11/09	0.39	-36	1.97	182	2.8	20	31.5	1.3	<4.0	<6.0	7.7
	03/10	<0.1	-69	2.14	153	1.5	21	46.9	1.3	<4.0	<6.0	2.2
	06/10	<0.1	-55	0.677	181	1.4	21	25.7	1.1	<4.0	<6.0	1.4J
	09/10	0.3	-100	1.40	168	1.6	25	28.0	2.7	<4.0	<6.0	<2.05
	11/10	<0.1	-73	0.81	195	2.1	24	25.0	2.1	<4.0	<6.0	<2.0
	03/11	<0.1	NT	1.45	173	0.96	24	23.2	1.5	<4.0	<6.0	2.5
	06/11	<0.1	-35	1.40	170	1.7	23	33.2	1.4	<4.0	<6.0	6.5
	09/11	<0.1	-58	0.62	169	1.3	26	27.2	<1.0	<4.0	<6.0	2.8
	12/11	<0.1	-141	1.28	149	1.4	25	47.1	1.5	<4.0	<6.0	2.4
	03/12	0.70	-70	0.714H	163	1.9	28	43.2	1.1	<4.0	<6.0	4.4
	06/12	<0.1	-30	1.35	160	2.1	30	45.3	<1.0	<4.0	<6.0	2
	09/12	<0.1	-37	0.61	187	2	27	30.8	<1.0	<4.0	<6.0	2
	12/12	<0.1	36	1.90	198	2.1	34	37.4	<1.0	<4.0	<6.0	2.1
	3/13	<0.1	-68	0.601	187	2.4	27	38.7	1.0	<4.0	<6.0	<2.0
	6/13	0.72	166	1.83	137	0.29	30	25.6	<1	<4	<6	3.1
	9/13	0.31	-72	0.453	146	1.7	31	38.5	<1	<4	<6	3.0
	12/13	0.15	-39.7	2.87	151	0.97	30	31.5	<1	<4.0	<6.0	<2.0
	5/14	0.02	-12.3	0.094	146	1.6	31	36.3	<1	<4	<6	4.2
	10/14	0.06	-12	0.52	168	2.2	30	30.3	<1	<4	<6	3.7
	5/15	0.04	-15.75	1.14	177	1.4	31	33.7	<1	<4	<6	<2
	12/15	<0.1	-22	1.29	169	1.1	29	24.6	1.2	<4	<6	1.6J
	6/16	<0.1	45	4.49	151	0.34	32	37.9	0.9J	<4	<6	1.6J
	12/16	0.22	53.76	13	161	0.23	31	43.5	0.8J	<4	<6	<2
	6/17	<0.1	281.44	3.29	168	0.074	34	42.5	0.8J	<4.0	<6.0	<2.0
	11/17	<0.1	80.52	10.1	134	0.11	31	44.2	1J	<4	<6	4.7
	6/18	0.05	138.97	3.10	151	0.042	32	23.4	1.0	<7.0	<10.0	4.2
	12/18	0.1	94.58	3.43	160	<0.40	31	24.5	0.9 J	<7.0	<10.0	<5.5
	8/19	<0.1	490.9	2.72	139	2.9	30	15.3	1.2	<7.0	<10.0	<4.0

TABLE 4
GEOCHEMICAL INDICATOR PARAMETER SUMMARY
OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

J006295.11

Monitoring Well	Date (mo/yr)	Dissolved Oxygen (mg/l)	ORP (mV)	Nitrate (mg/l)	Sulfate (mg/l)	Ferrous Iron (mg/l)	Chloride (mg/l)	Carbon Dioxide (mg/l)	Dissolved Organic Carbon (mg/l)	Ethane (µg/l)	Ethene (µg/l)	Methane (µg/l)
MW-C15	08/08	2.0	-155	<0.05	131	7.0	16	61.0	6.2	<200	<300	416
	10/08	2.9	-176	<0.05	137	11.0	12	34.9	2.4	<40.0	<60.0	270
	03/09	NT	-143	0.047J	137	10	14	32	3.4	<4.0	<6.0	86.1
	06/09	<0.1	-170	<0.050	130	12	19	48.2	5.4	<4.0	<6.0	199
	08/09	2.2	-165	0.072	92	10	14	49.6	5.7	<40.0	<60.0	771
	11/09	0.47	-142	<0.050	91	12	14	53.4	2.5	<200	<300	1,230
	03/10	<0.1	-213	0.011J	69	11	21	58.2	2.0	<40	<60	860
	06/10	<0.1	-133	0.023J	98	11	21	34.7	1.6	<400	27.4	341
	09/10	<0.1	-112	<0.050	107	11	23	53.2	3.2	<4.0	<6.0	660
	11/10	<0.1	-138	<0.050	37	9.8	23	44	3.2	<400	<600	394
	03/11	<0.1	NT	<0.050	163	12	26	29.5	1.7	<4.0	<6.0	71.9
	06/11	<0.1	-110	<0.050	60	10	19	52	2.3	39.5	<6.0	278
	09/11	<0.1	-104	<0.050	53	10	24	47.3	1.8	47.8	<60.0	1,020
	12/11	<0.1	-214	<0.050	53	10	17	81.3	2.7	<40.0	<60.0	676
	03/12	0.49	-45	<0.050H	85	15	20	76.6	1.8	13	<60.0	680
	06/12	<0.1	-106	<0.050	38	10	25	80.8	1.8	9.7	<6.0	692
	09/12	<0.1	-117	<0.050	<20	54	18	73.7	2.1	23.3	<6.0	1,900
	12/12	<0.1	-60	<0.050	77	13	32	69.9	1.4	11.2	6.4	710
	3/13	<0.1	-130	<0.050	37	10	20	81.6	1.9	<40.0	<60.0	488
	6/13	0.69	-114	0.107	73	11	26	48.8	1.4	191	160	628
	9/13	0.45	-127	<0.05	52	10	20	64.9	<5	<4	<6	325
	12/13	0.37	-120	<0.05	86	9.7	23	44.6	1.6	<4	<6	315
	5/14	0.06	-94.7	<0.05	28	11	36	128	2	<4	<300	1,180
	10/14	0.05	-104	<0.05	112	12	35	39.4	1.3	<4	64.9	151
	5/15	0.11	-107.36	<0.05	106	11	25	62.4	1.2	<4	<6	465
	12/15	<0.1	-124	<0.05	44	9.9	20	41.7	2.4	<4	15.2	850
	6/16	<0.1	-111	0.027J	42	20	18	62	2	<4	11.5	742
	12/16	<0.1	-27.53	0.051	57	11	19	63.8	2	<4	8.7	875
	6/17	<0.1	-108.67	0.012J	49	11	24	68.8	1.8	<4.0	<6.0	685
	11/17	<0.1	-77.41	<0.050	47	11	34	55.9	1.6	<4	69.7	885
	6/18	<0.1	-100.62	0.026 J	47	10	45	43.2	1.6	63.7	77.5	650
	12/18	<0.1	-59.64	<0.050	34	11	37	52.1	1.8	225	57.7	342
	8/19	<0.1	28.5	0.046J	37	18	29	24.2	2.9	270	45.5	748
MW-C16	08/08	0.6	-142	<0.05	100	0.69	19	45.2	3.6	<4.0	<6.0	16.3
	10/08	NT	NT	<0.05	71	6.3	13	9.5	1.7	<4.0	<6.0	40.6
	03/09	NT	-123	<0.05	80	5.6	13	33.8	2.5	<4.0	<6.0	23.9
	06/09	NT	-115	<0.05	79	6.2	14	12.8	3.9	<4.0	<6.0	37.3
	08/09	4.4	-135	<0.05	90	6.2	14	29.7	5.7	<4.0	<6.0	39.7
	11/09	1.0	-122	0.010J	69	5.6	12	37.6	4.0	<4.0	<6.0	35.2
	03/10	<0.1	-153	0.013J	32	6.0	15	19.7	2.1	<40	<60	344
	06/10	3.17	189	<0.050	40	5.3	16	39.4	2.1	<40	<60	216
	09/10	<0.1	-100	<0.050	43	5.4	13	32.2	4.9	<4.0	<6.0	173
	11/10	<0.1	-43	0.063	61	4.9	19	47	3.6	<4.0	<6.0	61
	03/11	<0.1	NT	0.056	18	5.1	14	27.9	3.1	<40.0	<60.0	505
	06/11	<0.1	-79	<0.050	22	5.3	10	48.9	2.4	<200	<300	303
	09/11	<0.1	-55	<0.050	12	17	13	38	1.9	<40.0	<60.0	686
	12/11	<0.1	-190	<0.050	37	4.7	15	57.6	2.4	<4.0	<6.0	126
	03/12	<0.1	-7	<0.050	46	5.8	15	44.6	1.8	<4.0	<6.0	87.1
	06/12	<0.1	0.137	<0.050	33	6.8	12	77.6	1.7	<4.0	<6.0	90.6
	09/12	<0.1	-144	<0.050	16	33	19	61.2	1.3	<4.0	<6.0	216
	12/12	<0.1	46	<0.050	22	6.1	30	48.4	1.3	<4.0	<6.0	550
	3/13	<0.1	-90	<0.050	37	5.3	23	29.6	1.6	<4.0	<6.0	35.3
	6/13	0.51	-74	<0.50	42	6.7	17	35.4	1.3	<20	<30	45.1
	9/13	0.60	-109	<0.05	12	5.8	13	32.9	1.5	<4	<6	202
	12/13	0.82	-100	<0.05	20	9.3	28	32.3	1.6	<4	<6	148
	4/14	0.19	-87.2	<0.05	61	6.4	17	45.1	1.1	<4	<6	89.3
	10/14	0.13	117.5	<0.05	44	7.8	37	44.9	1.1	<40	<60	94.4
	5/15	2.68	-92.44	<0.05	32	5.5	10	83.1	1.8	<4	<6	129
	12/15	<0.1	-145	<0.05	28	6.1	12	40.5	1.9	<4	<6	65.4
	6/16	<0.1	-120	0.015J	80	6.5	13	55.5	1.4	<4	<6	11.2
	11/16	0.11	-87.05	0.011J	43	5.8	13	52.2	1.4	<4	<6	28.9
	6/17	0.02	-69.29	0.030J	27	6.1	24	63.4	1.5	<4.0	<6.0	62.1
	11/17	<0.1	-72.37	0.023J	54	6.4	19	49.8	1.1	<4	<6	31.2
	6/18	0.17	40.85	0.125	40	0.075	63	31.0	2.6	<7.0	<10.0	29.5
	12/18	<0.1	80.09	<0.050	42	0.40	50	27.8	1.3	<7.0	<10.0	19.7
	8/19	<0.1	-82.60	0.043J	58	4.20	21	21.9	1.2	<7.0	<10.0	169

TABLE 4
GEOCHEMICAL INDICATOR PARAMETER SUMMARY
OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

Monitoring Well	Date (mo/yr)	Dissolved Oxygen (mg/l)	ORP (mV)	Nitrate (mg/l)	Sulfate (mg/l)	Ferrous Iron (mg/l)	Chloride (mg/l)	Carbon Dioxide (mg/l)	Dissolved Organic Carbon (mg/l)	Ethane (µg/l)	Ethene (µg/l)	Methane (µg/l)
MW-C17	08/08	1.5	-149	<0.05	105	5.1	14	47.4	3.0	<4.0	<6.0	3.5
	10/08	1.9	-151	<0.05	96	6.2	14	33.6	2.1	<4.0	<6.0	7.8
	03/09	NT	-156	<0.05	90	5.7	13	27.4	1.8	<4.0	<6.0	3.2
	06/09	NT	-110	<0.05	84	3.5	27	32	1.7	<4.0	<6.0	6.0
	08/09	2.6	-145	<0.05	102	7.1	15	32.4	61.0	2.2J	<6.0	3.6
	11/09	1.2	-93	0.327	105	5.0	14	34.4	2.6	<4.0	<6.0	11.2
	03/10	<0.1	-33	0.063	85	6.0	11	22.3	2.0	<4.0	<6.0	154
	06/10	3.42	176	<0.050	24	7.9	10	49.3	2.5	<400	<600	288
	09/10	<0.1	-102	<0.050	15	6.5	10	47.4	3.3	<4.0	<6.0	1,240
	11/10	<0.1	-102	0.276	42	5.0	9	49.3	3.8	<20.0	<30.0	169
	03/11	<0.1	NT	<0.050	47	6.6	9	34	2.8	<4.0	<6.0	64
	06/11	<0.1	-109	0.061	26	6.7	8	44.7	2.2	<200	<300	359
	09/11	<0.1	-95	<0.050	30	5.4	10	38.1	1.9	<40	<60	754
	12/11	<0.1	-92	0.284	50	0.026	12	48.1	2.4	<4.0	<6.0	2.8
	03/12	<0.1	-88	<0.050	105	6.4	18	46.4	1.4	<4.0	<6.0	21.1
	06/12	<0.1	-153	0.127	112	9.0	19	65.5	1.6	<4.0	<6.0	30.1
	09/12	<0.1	-156	0.052	32	4.0	7	56.1	1.3	<4.0	<6.0	102
	12/12	<0.1	-43	<0.050	34	6.8	15	65.5	1.5	<4.0	<6.0	198
	3/13	0.04	7	0.646	40	0.3	10	54.1	1.8	<4.0	<6.0	33.8
	6/13	0.26	-140	<0.05	103	12.0	16	26.3	<1	<4	<6	10
	9/13	1.16	-111	<0.05	36	6.4	7	41.8	1.5	<4	<6	93
	12/13	0.34	-109.7	<0.05	30	11.0	10	31	1.7	<4	<6	62.1
	4/14	0.25	-101.3	<0.05	12	5.9	11	48.6	2.9	<4	<6	1,400
	10/14	0.02	-118	<0.05	<10	4.4	10	40.2	2.4	<40	<60	1,140
	5/15	5.02	31.56	<0.05	99	6.3	14	68.8	1.2	<4	<6	19.8
	12/15	0.13	-158	0.01J	112	6.9	24	38.5	1.4	<4	<6	9.0
	6/16	<0.1	-105	0.026J	91	6.4	16	48	1.5	<4	<6	20.6
	11/16	0.96	63.18	1.02	64	0.13	22	27.6	1.8	<4	<6	<2
	6/17	0.04	-67.28	0.012J	73	6.6	17	59.2	1.2	<4.0	<6.0	27.9
	11/17	<0.1	30.59	0.011J	15	7.0	10	43.9	2.2	<4	<6	690
	6/18	NT	NT	1.60	56	0.064	35	10.7	1.8	<7.0	<10.0	<4.0
	12/18	<0.1	-7.43	<0.050	23	7.0	18	48.3	2.0	<7.0	<10.0	199
	8/19	<0.1	-72.50	0.38J	<10	7.8	15	35.7	2.0	<7.0	<10.0	201
MW-C18	12/15	<0.1	-100	0.032 J	75	6.7	28	69	1.2	<4	<6	26.9
	6/16	<0.1	87	0.023 J	69	5.8	27	41	1.2	<4	<6	26.3
	11/16	<0.1	-81.3	<0.050	72	7.9S	23	34.9	1.0	<4	<6	34.8
	6/17	<0.1	-82.77	0.012 J	71	6.0	24	43.2	0.8J	<4.0	<6.0	25.4
	11/17	<0.1	-74.72	<0.05	68	8.5	28	43.7	1.0	<4	<6	21.7
	6/18	0.04	-64.44	<0.050	52	4.6	18	36.9	1.0	<7.0	<10.0	18.9
	12/18	<0.1	-3.95	<0.050	55	7.5	33	42.3	1.3	<7.0	<10.0	18.3
	8/19	Not Sampled Due To Flooding										
MW-C19	12/15	<0.1	-103	<0.05	10	6.1	8.0	74.9	1.6	<4	<6	70.4
	6/16	<0.1	-100	0.010 J	10	7.6	10.0	64.4	1.7	<4	<6	88.2
	11/16	0.16	-88.83	0.066	10 S	8.8 S	9.0	31	1.5	<4	4.3 J	132
	6/17	<0.1	-68.65	0.013 J	10 J	8.1	12	72.6	1.3	<4.0	<6.0	84.0
	11/17	<0.1	-79.26	0.01 J	13	7.2	8	62.9	1.7	<4	<6	48.4
	6/18	0.05	-60.75	0.016 J	9 JS	2.3	8	59.5	1.5	<7.0	<10.0	30.9
	12/18	0.37	88.92	0.194	15	0.7	19	40.6	1.7	<7.0	<10.0	21.6
	8/19	Not Sampled Due To Flooding										

Notes:

J = Estimated value below the reporting limit.

NT = Not tested or anomalous results due to equipment problems in the field.

H = Holding times exceeded.

S = Spike Recovery outside recovery limits.



APPENDIX A

MNA SCREENING ASSESSMENT

SCREENING FOR ANAEROBIC BIODEGRADATION PROCESSES
OU3 - HAYFORD BRIDGE ROAD GROUNDWATER SITE
ST. CHARLES, MISSOURI

J006295.11

Parameter	Range	Value	Assessment	Score
Oxygen	< 0.5 mg/L	3	Yes	3
Oxygen	> 5 mg/L	-3	No	0
Nitrate	< 1 mg/L	2	Yes	2
Iron II	> 1 mg/L	3	Yes	3
Sulfate	< 20 mg/L	2	No	0
Sulfide	> 1 mg/L	3	Not Tested	---
Methane	< 0.5 mg/L	0	Yes	0
Methane	> 0.5 mg/L	3	No	0
ORP	< 50 mV	1	Yes	1
ORP	< -100 mV	2	No	0
pH	5 < pH < 9	0	Yes	0
pH	5 > pH > 9	-2	No	0
TOC	> 20 mg/L	2	No	0
Temperature	> 20 C	1	No	0
Carbon Dioxide	> 2x background	1	No	0
Alkalinity	> 2x background	1	Not Tested	---
Chloride	> 2x background	2	Yes	2
Hydrogen	< 1 nM	3	Not Tested	---
Hydrogen	> 1 nM	0	Not Tested	---
Volatile Fatty Acids	> 0.1 mg/L	2	Not Tested	---
BTEX	> 0.1 mg/L	2	Yes	2
PCE	as released	0	No	0
TCE	as released	0	No	0
TCE	daughter product	2	No	0
DCE	as released	0	No	0
DCE	daughter product	2	Yes	2
VC	as released	0	No	0
VC	daughter product	2	Yes	2
1,1,1-Trichloroethane	as released	0	No	0
DCA	daughter product	2	Yes	2
Carbon Tetrachloride	as released	0	No	0
Chloroethane	daughter product	2	No	0
Ethene/Ethane	> 0.01 mg/L	2	(Yes)	---
Ethene/Ethane	> 0.1 mg/L	3	Yes	3
Chloroform	as released	0	No	0
Chloroform	daughter product	2	No	0
Dichloromethane	as released	0	No	0
Dichloromethane	daughter product	2	No	0
Total Score				22

Interpretation:

0 to 5: Inadequate evidence for anaerobic biodegradation of chlorinated organics.

6 to 14: Limited evidence for anaerobic biodegradation of chlorinated organics.

15 to 20: Adequate evidence for anaerobic biodegradation of chlorinated organics.

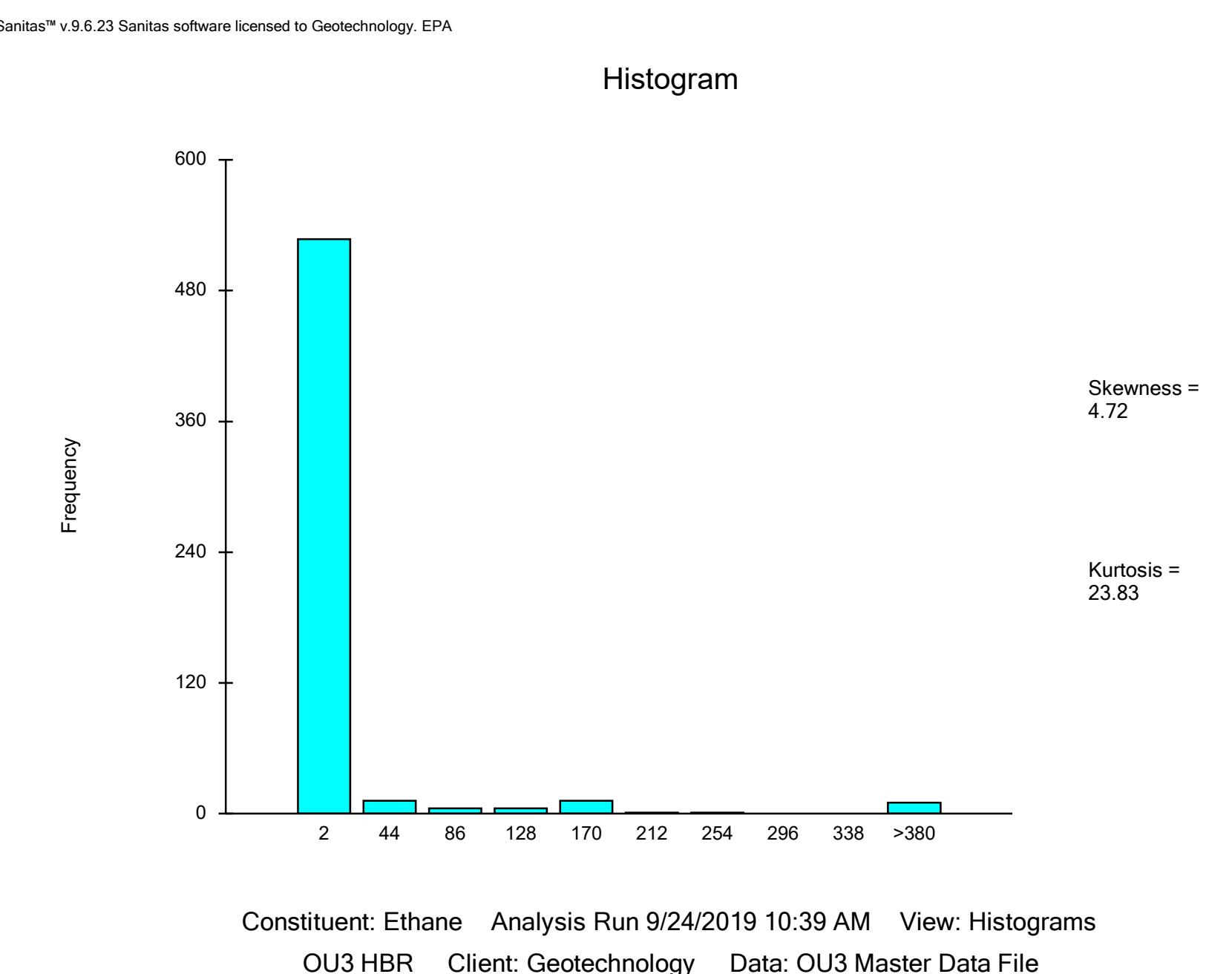
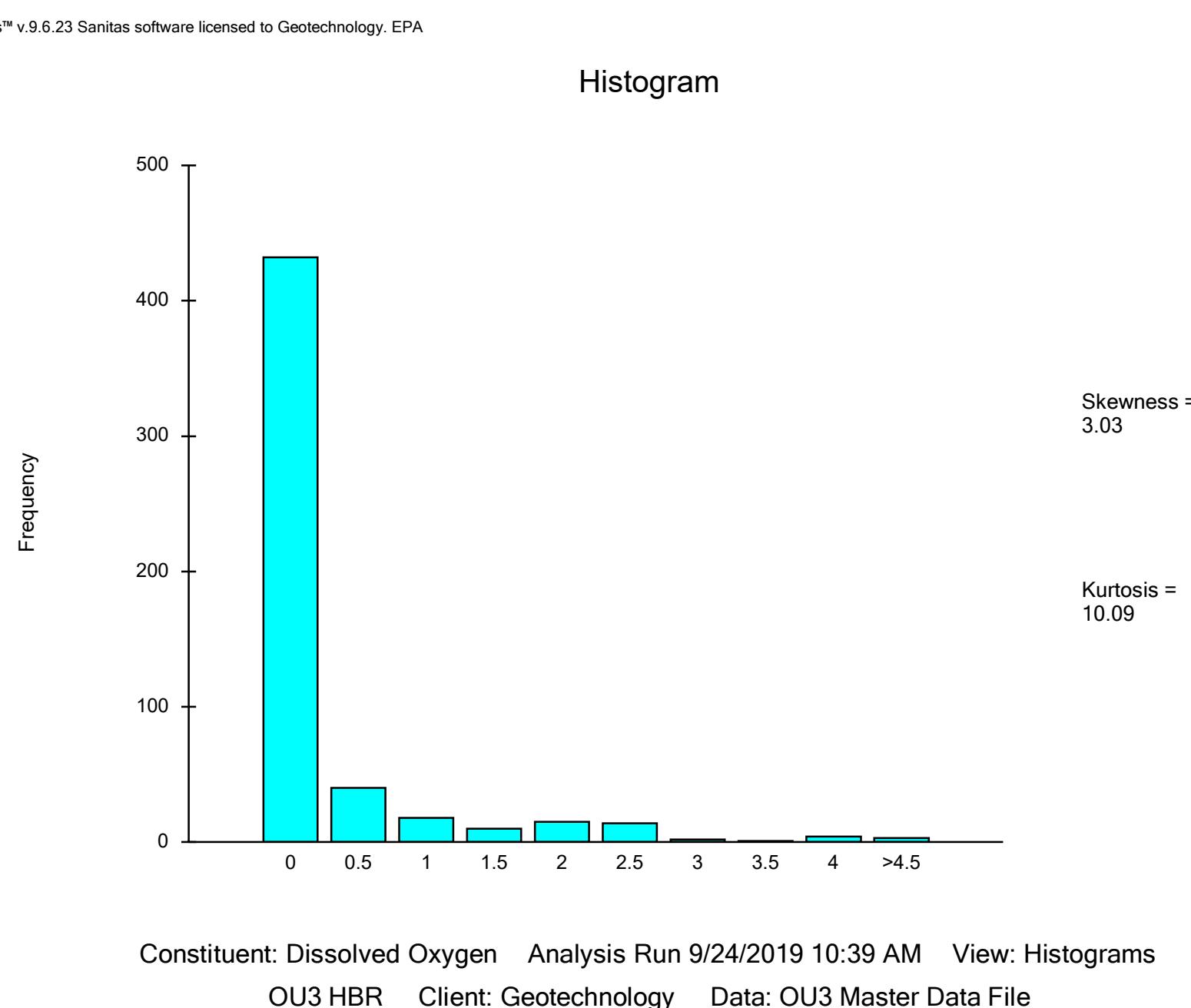
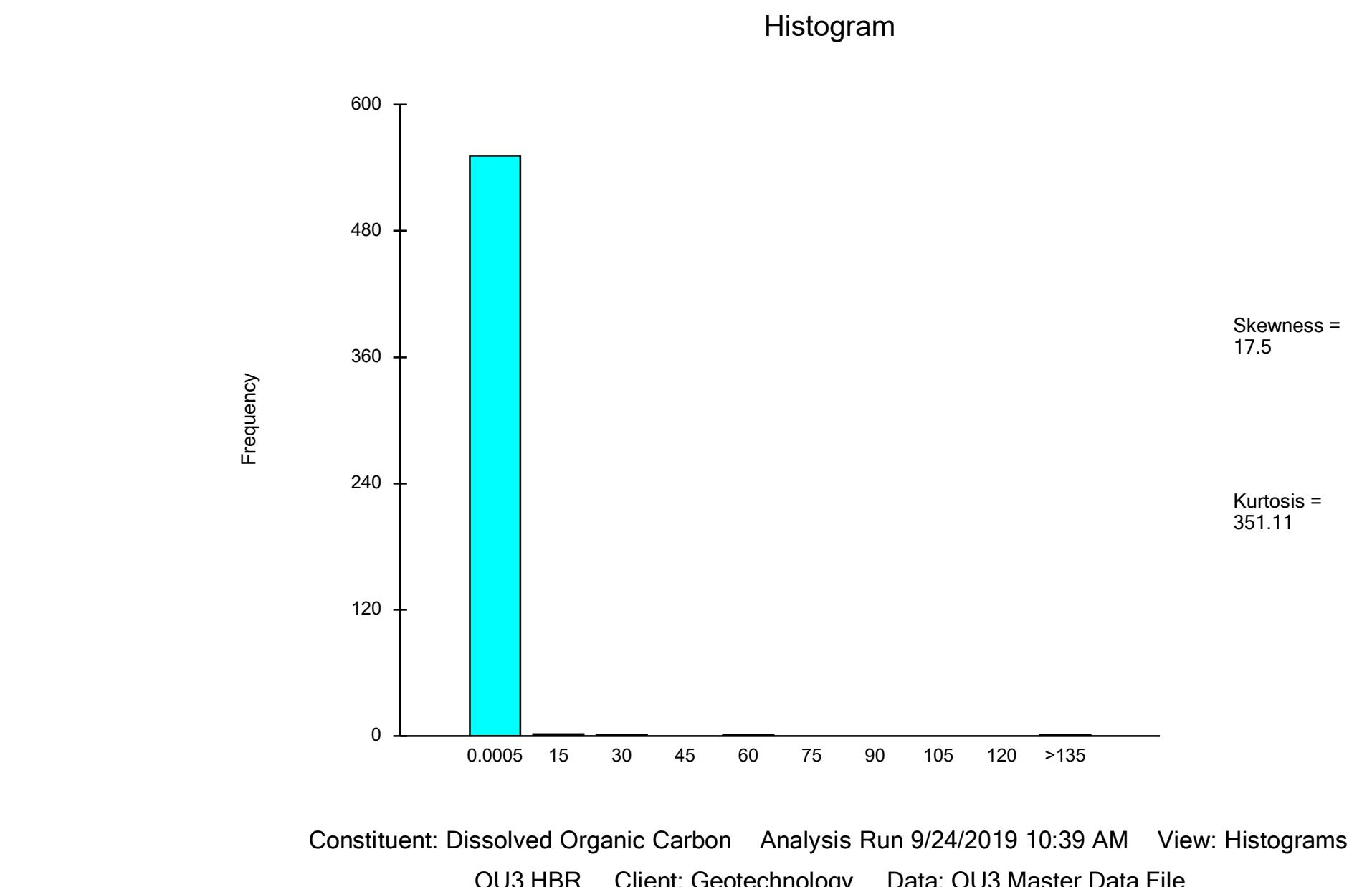
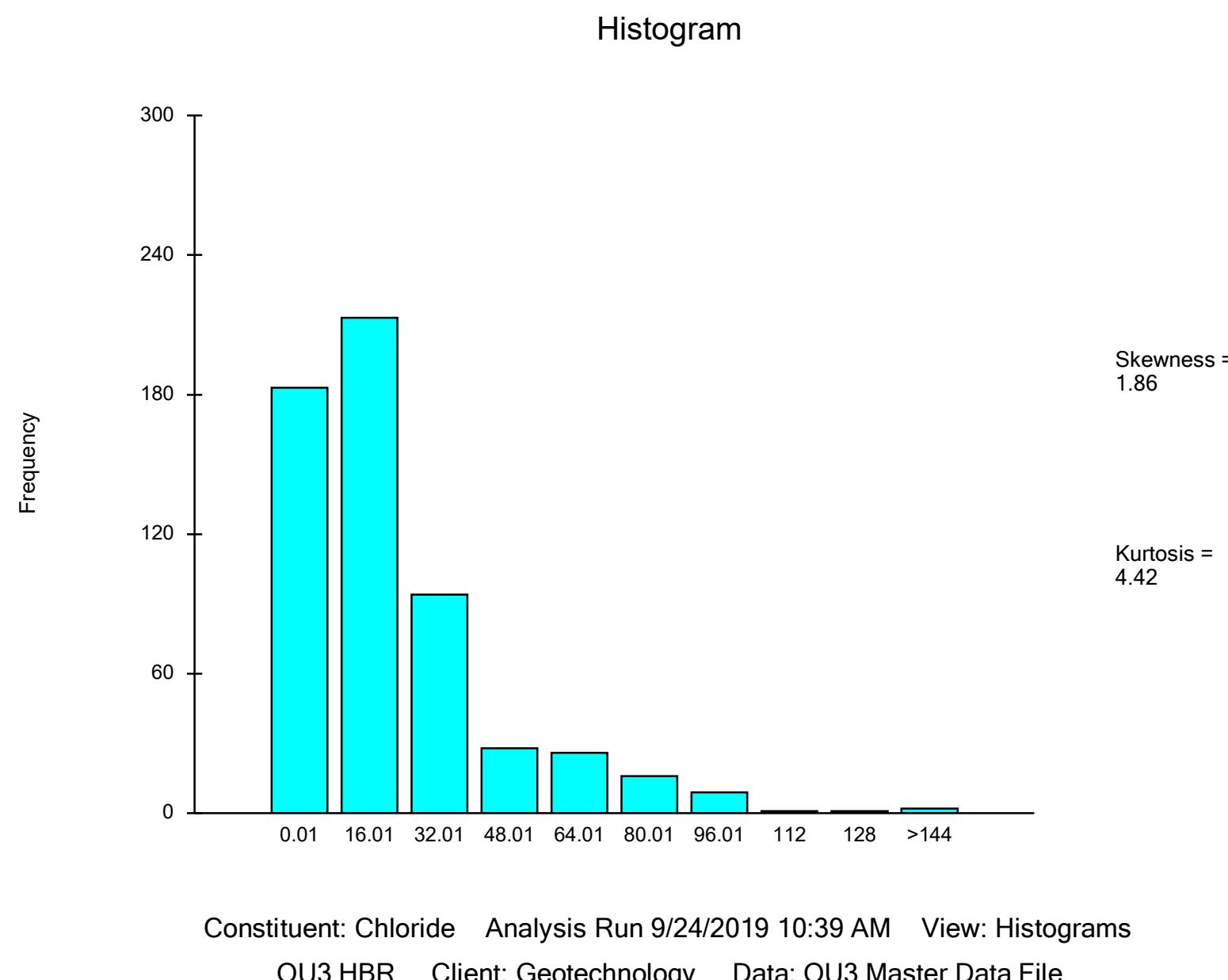
> 20: Strong evidence for anaerobic biodegradation of chlorinated organics.

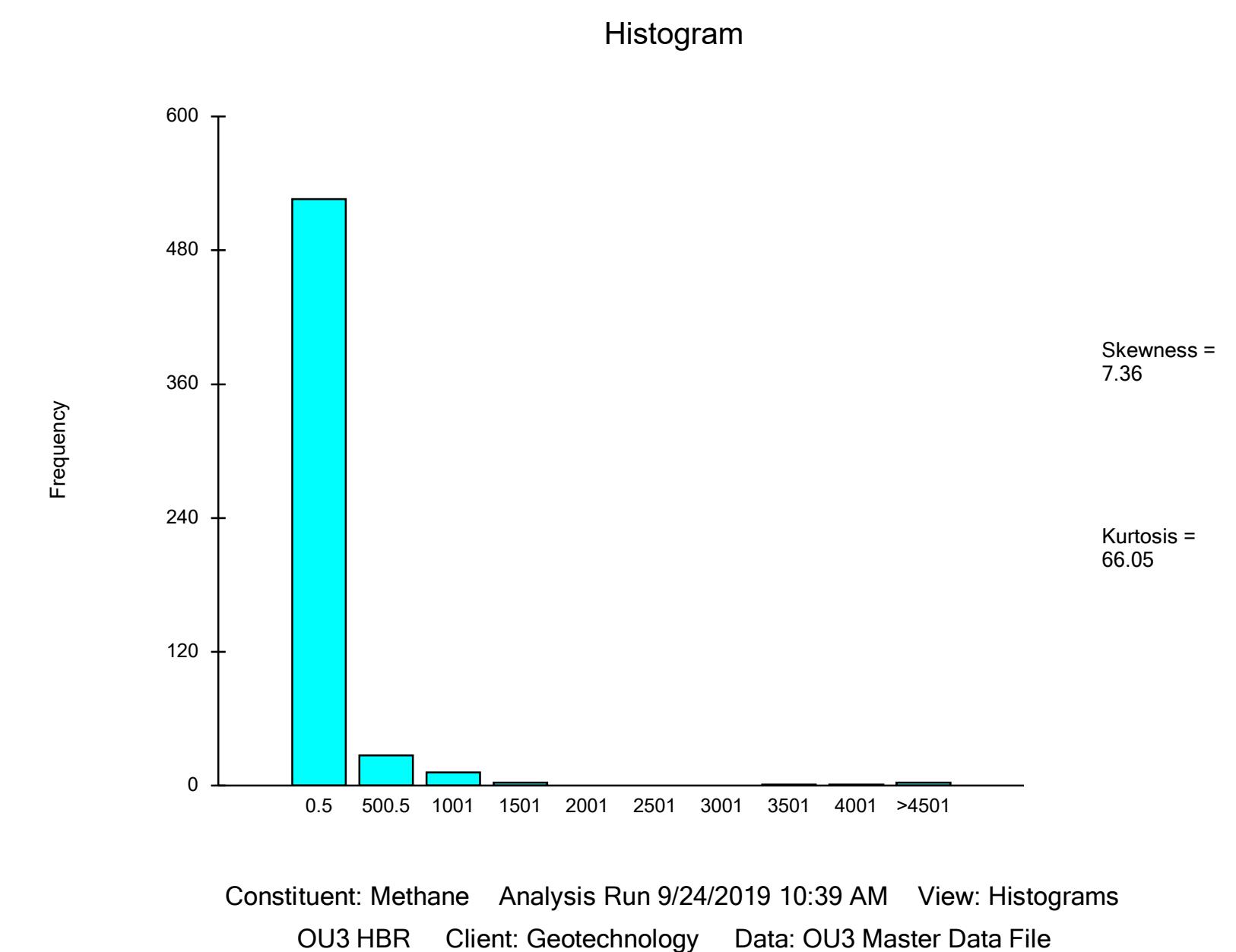
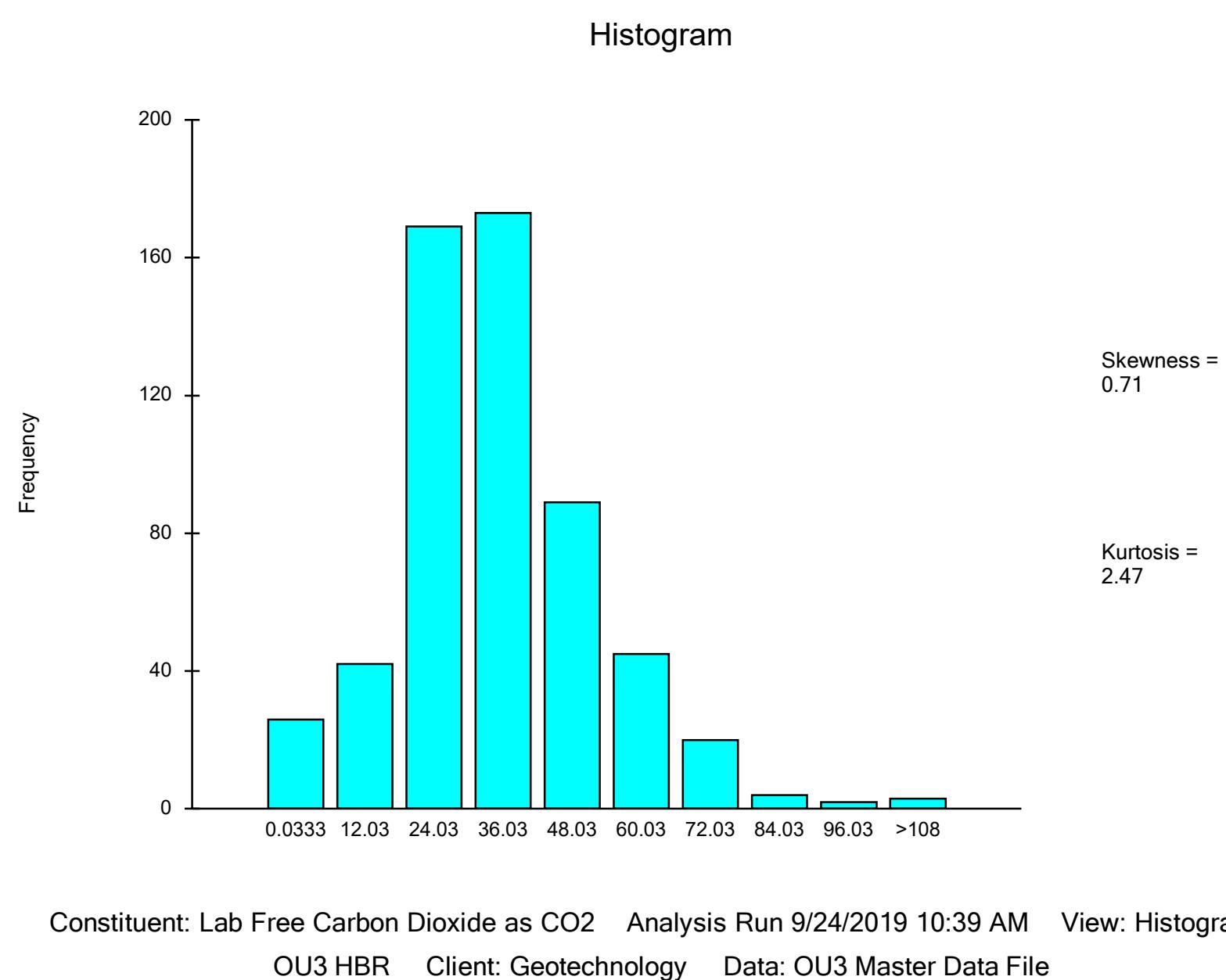
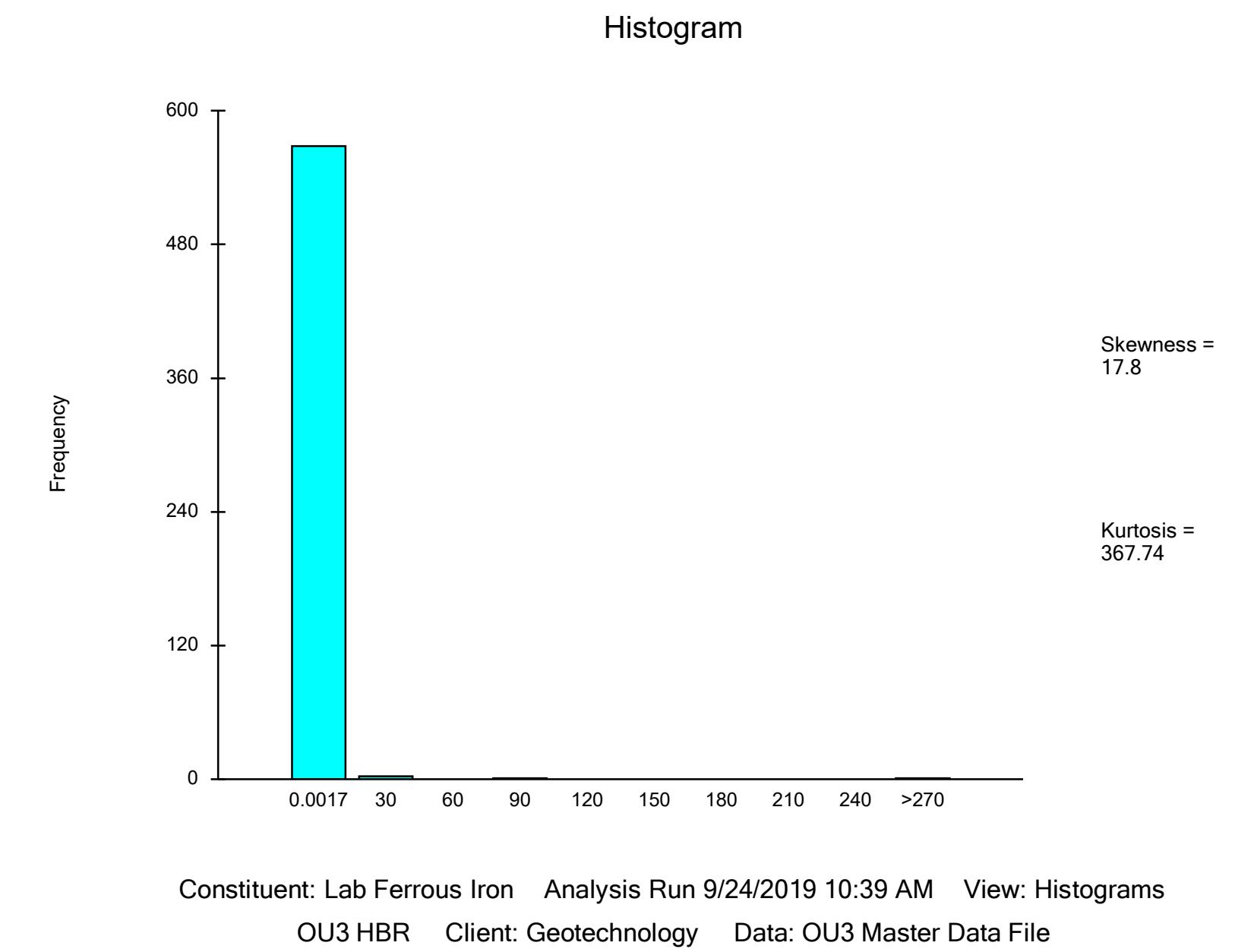
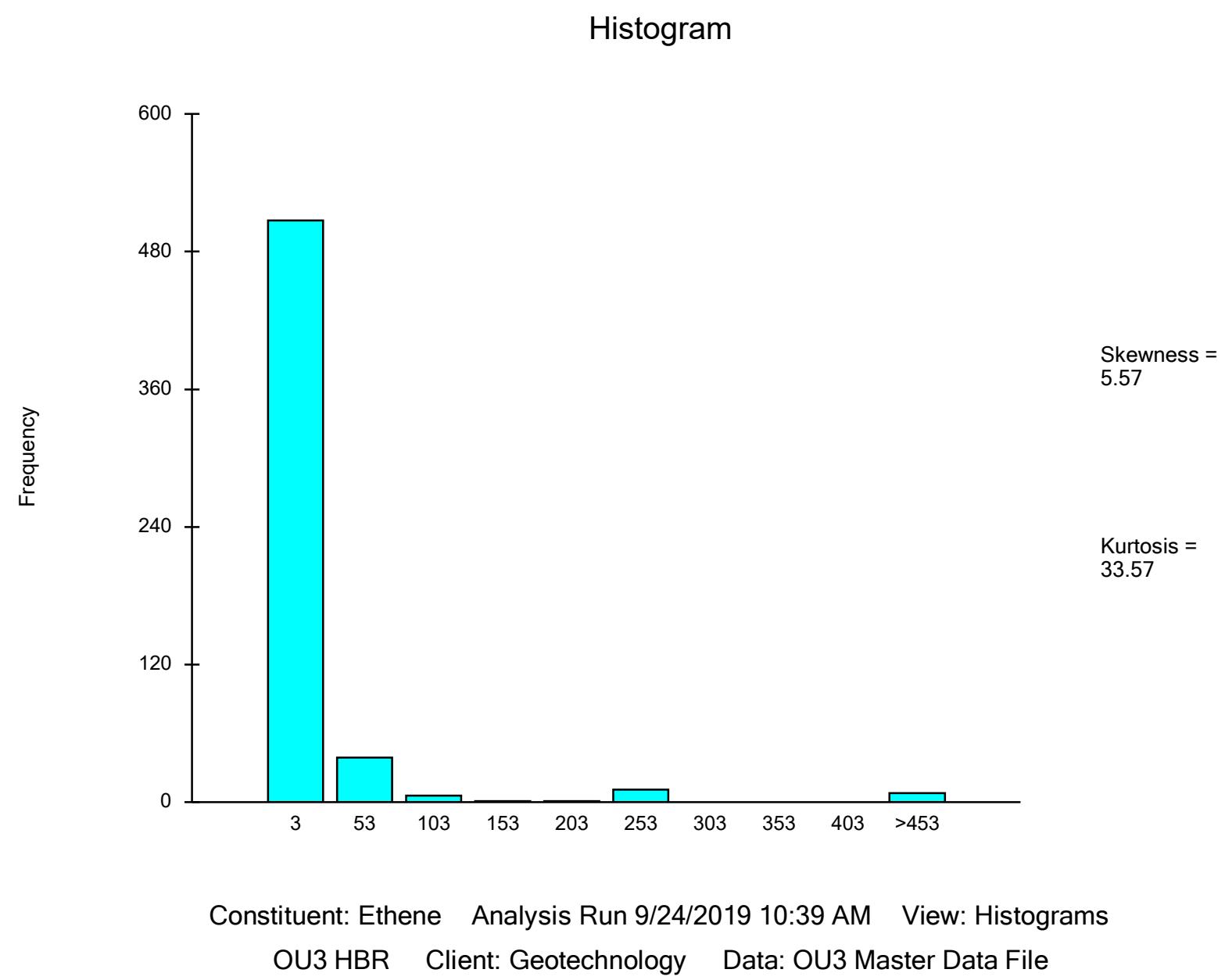
Note: Assessment ranges are for the most contaminated zone.

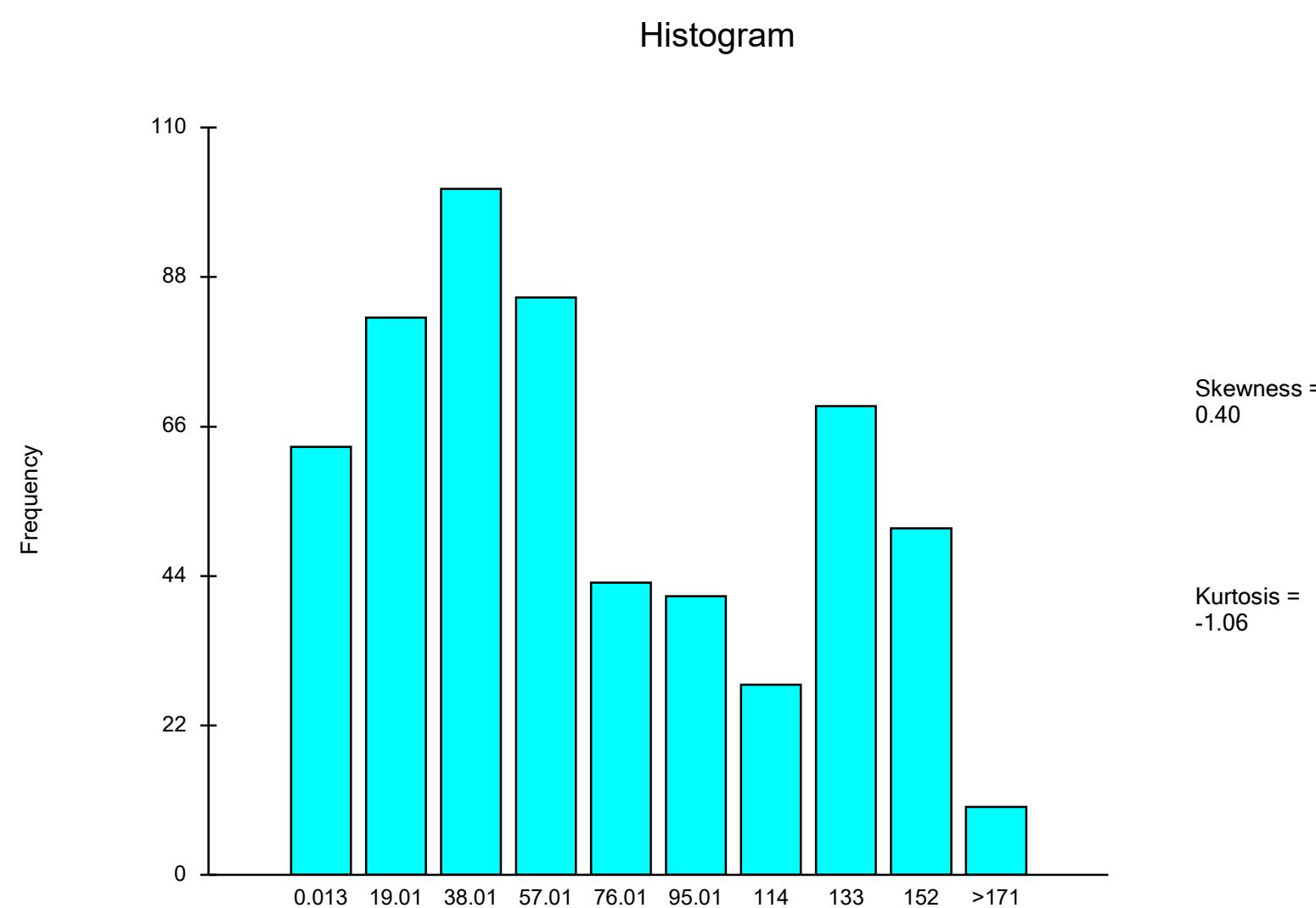
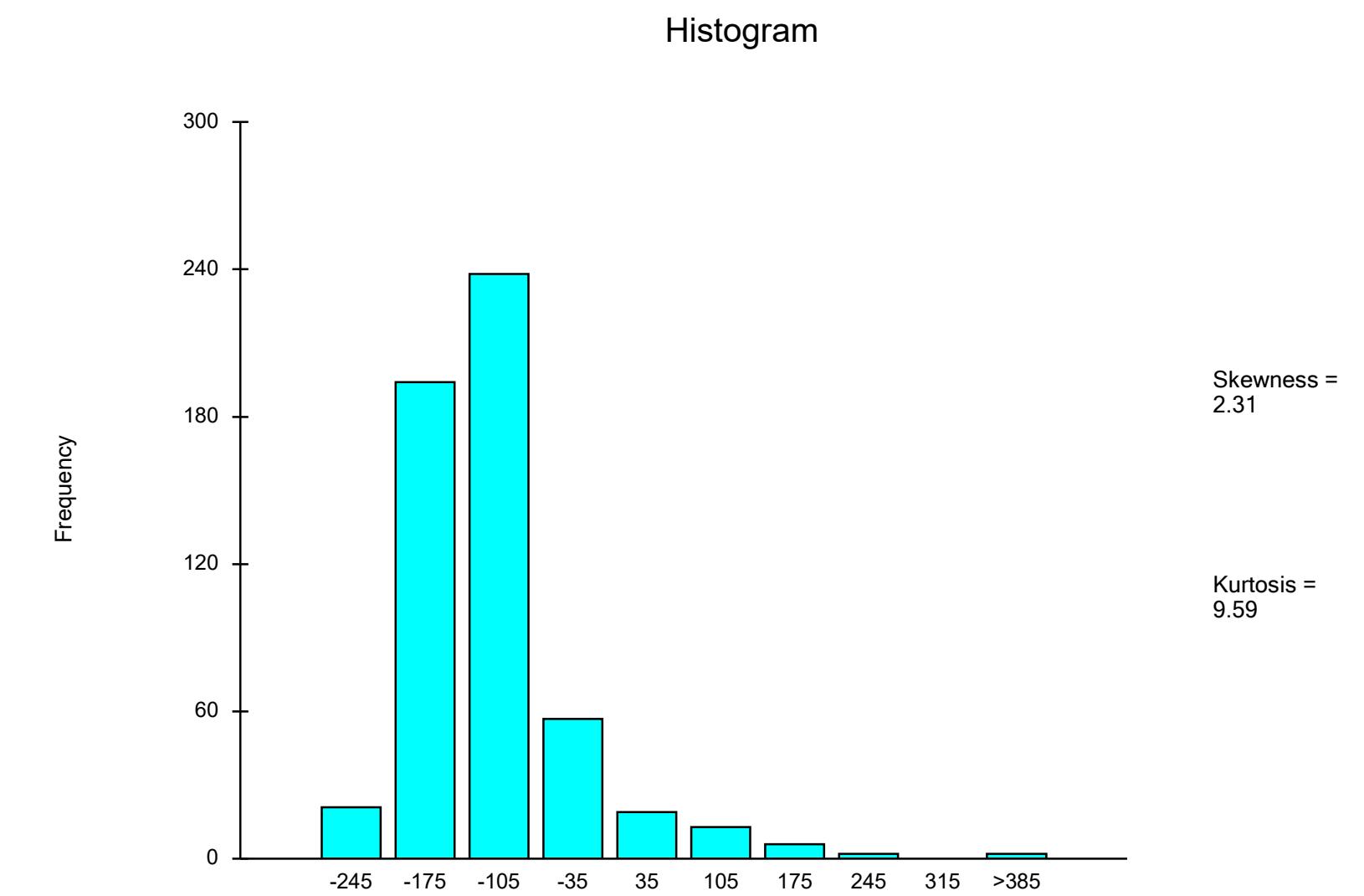
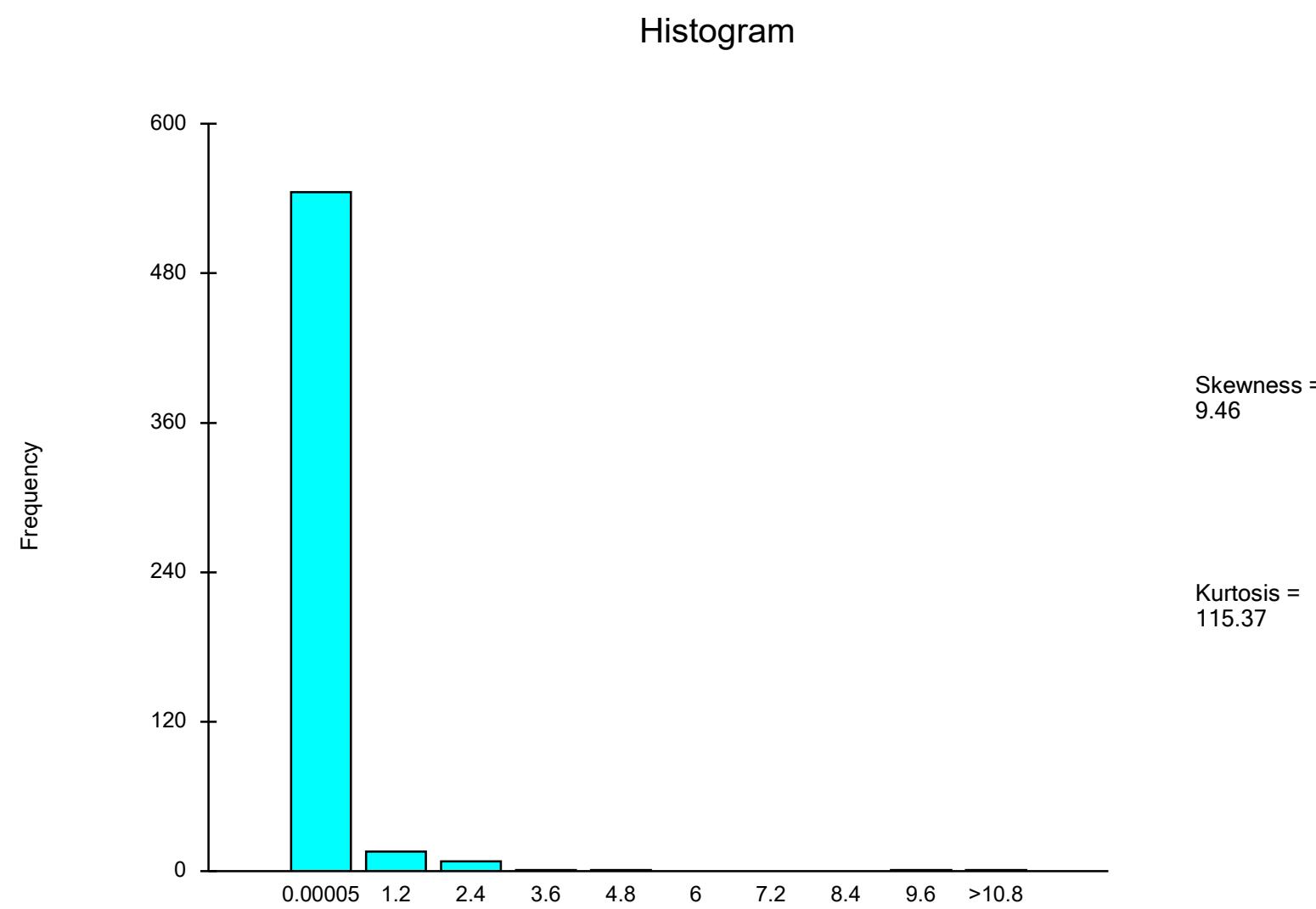


APPENDIX B

GEOCHEMICAL PARAMETER SUMMARY







Constituent: Sulfate Analysis Run 9/24/2019 10:39 AM View: Histograms
OU3 HBR Client: Geotechnology Data: OU3 Master Data File

Summary Report

Constituent: Chloride Analysis Run 9/24/2019 10:37 AM View: Histograms
 OU3 HBR Client: Geotechnology Data: OU3 Master Data File

For observations made between 8/25/2008 and 8/30/2019, a summary of the selected data set:

Observations = 573

ND/Trace = 3

Wells = 19

Minimum Value = 0.01

Maximum Value = 162

Mean Value = 29.73

Median Value = 23

Standard Deviation = 23.26

Coefficient of Variation = 0.7823

Skewness = 1.866

<u>Well</u>	<u>#Obs.</u>	<u>ND/Trace</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>Median</u>	<u>Std.Dev.</u>	<u>CV</u>	<u>Skewness</u>
MW-C10	33	0	0.02	29	19.91	20	4.987	0.2505	-1.763
MW-C11	33	1	0.035	57	30.99	33	13.59	0.4384	-0.4012
MW-C5	33	0	0.012	21	13	14	3.454	0.2657	-1.294
MW-C6	33	0	0.011	20	12.97	13	3.539	0.2728	-1.024
MW-C9	33	0	0.051	52	40.85	41	9.321	0.2282	-2.497
MW-C1	32	1	0.091	104	75.32	80	26.15	0.3472	-1.576
MW-C16	33	0	0.03	63	18.36	15	11.72	0.6381	2.34
MW-C17	33	0	0.015	35	13.79	13	6.527	0.4733	1.111
MW-C2	32	0	0.037	73	38.91	40	15.75	0.4048	0.2193
MW-C7	33	0	0.035	50	36.03	35	8.629	0.2395	-1.851
MW-C8	33	0	0.02	27	17.49	18	4.343	0.2484	-1.491
MW-C12	33	1	0.091	162	58.96	54	41.74	0.708	0.7136
MW-C13	33	0	0.085	105	52.34	57	26.28	0.5022	-0.0111
MW-C14	33	0	0.034	34	25.36	27	7.071	0.2788	-1.561
MW-C15	33	0	0.032	45	22.33	21	8.444	0.3781	0.3554
MW-C3	33	0	0.027	45	25.27	25	7.003	0.2771	-0.4479
MW-C4	33	0	0.01	19	10.03	10	3.413	0.3403	0.2632
MW-C18	7	0	18	33	25.86	27	4.741	0.1833	-0.2182
MW-C19	7	0	8	19	10.57	9	3.994	0.3778	1.544

Summary Report

Constituent: Dissolved Organic Carbon Analysis Run 9/24/2019 10:37 AM View: Histograms
 OU3 HBR Client: Geotechnology Data: OU3 Master Data File

For observations made between 8/25/2008 and 8/30/2019, a summary of the selected data set:

Observations = 556

ND/Trace = 119

Wells = 19

Minimum Value = 0.0005

Maximum Value = 160

Mean Value = 2.315

Median Value = 1.6

Standard Deviation = 7.552

Coefficient of Variation = 3.263

Skewness = 17.56

<u>Well</u>	<u>#Obs.</u>	<u>ND/Trace</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>Median</u>	<u>Std.Dev.</u>	<u>CV</u>	<u>Skewness</u>
MW-C10	32	9	0.0005	7.3	1.297	1	1.245	0.9598	3.625
MW-C11	32	6	0.0005	160	6.238	1.2	28.07	4.5	5.383
MW-C5	32	9	0.0005	4.4	1.238	1	0.8911	0.72	1.664
MW-C6	32	7	0.001	21	1.994	1.15	3.605	1.808	4.786
MW-C9	32	11	0.0005	8	1.331	1	1.405	1.055	3.484
MW-C1	31	1	0.0011	7.4	2.336	2.1	1.385	0.593	1.692
MW-C16	32	0	0.0013	5.7	2.156	1.75	1.225	0.5683	1.164
MW-C17	32	1	0.0015	61	3.825	1.95	10.46	2.735	5.34
MW-C2	31	0	0.0017	8	2.729	2.2	1.398	0.5124	1.689
MW-C7	32	6	0.0005	5.9	1.566	1.2	1.185	0.757	2.019
MW-C8	32	1	0.0012	6.3	1.656	1.4	1.084	0.6542	2.574
MW-C12	32	8	0.0011	4.8	1.303	1.1	0.9904	0.76	1.6
MW-C13	32	6	0.0005	3.8	1.581	1.55	0.8521	0.5389	0.4004
MW-C14	32	11	0.0005	4.5	1.25	1	1.005	0.8043	1.83
MW-C15	32	1	0.0014	6.2	2.381	2	1.29	0.5416	1.553
MW-C3	32	1	0.0015	28	3.069	1.75	4.811	1.568	4.576
MW-C4	32	1	0.0019	38	3.847	2.15	6.478	1.684	4.8
MW-C18	7	0	0.8	1.3	1.071	1	0.1704	0.1591	-0.1781
MW-C19	7	0	1.3	1.7	1.571	1.6	0.1496	0.0952	-0.7703

Summary Report

Constituent: Dissolved Oxygen Analysis Run 9/24/2019 10:37 AM View: Histograms
 OU3 HBR Client: Geotechnology Data: OU3 Master Data File

For observations made between 8/25/2008 and 8/30/2019, a summary of the selected data set:

Observations = 539

ND/Trace = 268

Wells = 19

Minimum Value = 0

Maximum Value = 5.53

Mean Value = 0.4058

Median Value = 0.05

Standard Deviation = 0.8284

Coefficient of Variation = 2.042

Skewness = 3.028

<u>Well</u>	<u>#Obs.</u>	<u>ND/Trace</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>Median</u>	<u>Std.Dev.</u>	<u>CV</u>	<u>Skewness</u>
MW-C10	31	13	0	3.8	0.4332	0.05	0.8457	1.952	2.801
MW-C11	32	17	0	3	0.2922	0.05	0.6555	2.244	3.164
MW-C5	31	16	0	2.53	0.3897	0.05	0.7369	1.891	2.245
MW-C6	30	15	0	2.9	0.2987	0.05	0.6532	2.187	3.092
MW-C9	31	14	0	4.2	0.4323	0.05	0.9015	2.086	2.988
MW-C1	31	17	0.00005	4.55	0.6671	0.05	1.2	1.798	2.195
MW-C16	30	12	0	4.41	0.504	0.05	1.041	2.066	2.66
MW-C17	30	11	0	5.02	0.6493	0.05	1.19	1.832	2.31
MW-C2	31	15	0	4.1	0.4239	0.05	0.8674	2.046	2.98
MW-C7	31	16	0	2.9	0.3381	0.05	0.6504	1.924	2.846
MW-C8	30	18	0	5.53	0.4503	0.05	1.124	2.497	3.52
MW-C12	32	12	0	2.74	0.5181	0.1	0.6976	1.346	1.592
MW-C13	32	16	0	2.6	0.3744	0.05	0.7435	1.986	2.342
MW-C14	32	13	0	2.8	0.3341	0.05	0.6795	2.034	2.724
MW-C15	31	18	0	2.9	0.3603	0.05	0.71	1.97	2.567
MW-C3	30	18	0	2.6	0.2657	0.05	0.5998	2.258	2.848
MW-C4	30	17	0.00005	2.6	0.3187	0.05	0.6797	2.133	2.496
MW-C18	7	6	0.04	0.05	0.04857	0.05	0.00378	0.07782	-2.041
MW-C19	7	4	0.05	0.37	0.1114	0.05	0.1212	1.087	1.644

Summary Report

Constituent: Ethane Analysis Run 9/24/2019 10:37 AM View: Histograms
 OU3 HBR Client: Geotechnology Data: OU3 Master Data File

For observations made between 8/25/2008 and 8/30/2019, a summary of the selected data set:

Observations = 573

ND/Trace = 493

Wells = 19

Minimum Value = 1

Maximum Value = 427

Mean Value = 14.71

Median Value = 2

Standard Deviation = 40.35

Coefficient of Variation = 2.743

Skewness = 4.829

<u>Well</u>	<u>#Obs.</u>	<u>ND/Trace</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>Median</u>	<u>Std.Dev.</u>	<u>CV</u>	<u>Skewness</u>
MW-C10	33	33	1	20	2.621	2	3.162	1.206	5.254
MW-C11	33	33	1	100	6.379	2	17.4	2.728	4.957
MW-C5	33	33	1	3.5	2.076	2	0.5172	0.2492	1.414
MW-C6	33	33	1	200	11.05	2	37.96	3.437	4.308
MW-C9	33	33	1	3.5	2.076	2	0.5172	0.2492	1.414
MW-C1	32	32	1	20	2.641	2	3.211	1.216	5.165
MW-C16	33	32	1	100	8.652	2	18.5	2.139	3.965
MW-C17	33	32	1	200	12.38	2	37.9	3.06	4.224
MW-C2	32	32	1	20	2.891	2	3.461	1.197	4.219
MW-C7	33	33	1	20	2.621	2	3.162	1.206	5.254
MW-C8	33	24	1	20	5.324	2	5.585	1.049	1.744
MW-C12	33	5	2	42.2	13.32	9.4	10.88	0.8166	1.182
MW-C13	33	4	2	427	83.84	62.7	79.93	0.9534	2.488
MW-C14	33	33	1	3.5	2.076	2	0.5172	0.2492	1.414
MW-C15	33	22	1	270	49.73	13	77.15	1.551	1.666
MW-C3	33	32	1	200	19.26	2	50.03	2.598	3.095
MW-C4	33	32	1	200	27.68	2	52.71	1.904	2.39
MW-C18	7	7	1	3.5	2.286	2	0.9063	0.3965	0.3294
MW-C19	7	7	1	3.5	2.286	2	0.9063	0.3965	0.3294

Summary Report

Constituent: Ethene Analysis Run 9/24/2019 10:37 AM View: Histograms
 OU3 HBR Client: Geotechnology Data: OU3 Master Data File

For observations made between 8/25/2008 and 8/30/2019, a summary of the selected data set:

Observations = 573

ND/Trace = 490

Wells = 19

Minimum Value = 1.5

Maximum Value = 600

Mean Value = 16.94

Median Value = 3

Standard Deviation = 49.66

Coefficient of Variation = 2.931

Skewness = 6.026

<u>Well</u>	<u>#Obs.</u>	<u>ND/Trace</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>Median</u>	<u>Std.Dev.</u>	<u>CV</u>	<u>Skewness</u>
MW-C10	33	33	1.5	30	3.909	3	4.738	1.212	5.287
MW-C11	33	13	1.5	150	21.37	8.1	36.24	1.695	2.537
MW-C5	33	33	1.5	5	3.091	3	0.7121	0.2304	1.125
MW-C6	33	33	1.5	300	16.55	3	56.95	3.442	4.309
MW-C9	33	33	1.5	5	3.091	3	0.7121	0.2304	1.125
MW-C1	32	32	1.5	30	3.938	3	4.811	1.222	5.198
MW-C16	33	32	1.5	150	12.95	3	27.76	2.143	3.965
MW-C17	33	33	1.5	300	18.55	3	56.86	3.066	4.223
MW-C2	32	32	1.5	30	4.313	3	5.188	1.203	4.241
MW-C7	33	33	1.5	30	3.909	3	4.738	1.212	5.287
MW-C8	33	15	1.5	30	9.436	6	8.599	0.9113	1.403
MW-C12	33	30	1.5	7.9	3.424	3	1.353	0.3953	2.103
MW-C13	33	5	3	214	47.45	30.7	47.61	1.003	1.838
MW-C14	33	31	1.5	6.9	3.276	3	1.031	0.3149	1.688
MW-C15	33	19	3	600	68.67	30	123	1.791	2.935
MW-C3	33	32	1.5	300	28.86	3	75.05	2.6	3.095
MW-C4	33	33	1.5	300	40.14	3	79.14	1.972	2.435
MW-C18	7	7	1.5	5	3.357	3	1.249	0.372	0.2108
MW-C19	7	6	1.5	5	3.543	3	1.283	0.3621	-0.2031

Summary Report

Constituent: Lab Ferrous Iron Analysis Run 9/24/2019 10:37 AM View: Histograms
 OU3 HBR Client: Geotechnology Data: OU3 Master Data File

For observations made between 8/25/2008 and 8/30/2019, a summary of the selected data set:

Observations = 573

ND/Trace = 3

Wells = 19

Minimum Value = 0.0017

Maximum Value = 310

Mean Value = 6.666

Median Value = 5.8

Standard Deviation = 14.24

Coefficient of Variation = 2.137

Skewness = 17.87

<u>Well</u>	<u>#Obs.</u>	<u>ND/Trace</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>Median</u>	<u>Std.Dev.</u>	<u>CV</u>	<u>Skewness</u>
MW-C10	33	0	0.012	11	8.499	9.2	2.382	0.2802	-2.743
MW-C11	33	0	0.0069	24	6.109	5.7	3.573	0.5848	3.839
MW-C5	33	0	0.0051	16	4	4	2.551	0.6377	3.052
MW-C6	33	0	0.0053	24	5.324	4.9	3.689	0.6929	4.003
MW-C9	33	1	0.0017	2.1	0.8733	0.8	0.6937	0.7943	0.2938
MW-C1	32	0	0.0076	14	6.047	6.2	2.597	0.4295	0.3568
MW-C16	33	1	0.0061	33	5.932	5.8	5.348	0.9015	3.939
MW-C17	33	0	0.0068	12	5.585	6.3	2.89	0.5175	-0.4424
MW-C2	32	0	0.0082	15	6.744	7.05	2.763	0.4097	0.6247
MW-C7	33	0	0.0061	16	3.897	3.2	3.058	0.7849	2.505
MW-C8	33	0	0.0069	12	6.288	6.4	1.753	0.2789	-0.4851
MW-C12	33	0	0.0087	120	11.64	8	20.14	1.73	4.975
MW-C13	33	0	0.012	310	17.8	9.1	52.55	2.953	5.448
MW-C14	33	1	0.0021	3.4	1.522	1.6	0.9778	0.6425	-0.03925
MW-C15	33	0	0.013	54	12.19	11	8.105	0.6646	4.271
MW-C3	33	0	0.006	14	5.409	4.9	3.211	0.5936	1.182
MW-C4	33	0	0.0056	10	5.615	5.5	2.205	0.3927	-0.07508
MW-C18	7	0	4.6	8.5	6.714	6.7	1.356	0.2019	-0.1975
MW-C19	7	0	0.7	8.8	5.829	7.2	3.105	0.5327	-0.7983

Summary Report

Constituent: Lab Free Carbon Dioxide as CO₂ Analysis Run 9/24/2019 10:37 AM View: Histograms
 OU3 HBR Client: Geotechnology Data: OU3 Master Data File

For observations made between 8/25/2008 and 8/30/2019, a summary of the selected data set:

Observations = 573

ND/Trace = 0

Wells = 19

Minimum Value = 0.0333

Maximum Value = 129

Mean Value = 41.05

Median Value = 39.4

Standard Deviation = 18.01

Coefficient of Variation = 0.4387

Skewness = 0.7152

<u>Well</u>	<u>#Obs.</u>	<u>ND/Trace</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>Median</u>	<u>Std.Dev.</u>	<u>CV</u>	<u>Skewness</u>
MW-C10	33	0	0.0463	69	36.3	35.9	12.5	0.3443	-0.0654
MW-C11	33	0	0.037	64.5	32.63	32.5	13.61	0.417	-0.07191
MW-C5	33	0	0.0479	63	32.48	31.9	10.84	0.3336	-0.09187
MW-C6	33	0	0.0516	103	38.43	37.3	17.7	0.4607	1.541
MW-C9	33	0	0.0333	46.6	24.35	23.6	9.491	0.3898	-0.1661
MW-C1	32	0	0.055	103	50.44	49	22.08	0.4377	0.06053
MW-C16	33	0	0.0484	83.1	39.64	38	17.79	0.4487	0.2549
MW-C17	33	0	0.0655	68.8	40.31	41.8	14.32	0.3552	-0.5401
MW-C2	32	0	0.048	88.8	46.34	46.45	20.05	0.4326	-0.273
MW-C7	33	0	0.0374	87	50.34	49.8	15.98	0.3175	-0.4691
MW-C8	33	0	0.0334	64.7	36.51	35.6	11.96	0.3274	-0.7091
MW-C12	33	0	0.0516	66.9	40.94	41	13.19	0.3223	-0.4699
MW-C13	33	0	0.0568	77.9	45.85	43	14.92	0.3255	-0.1676
MW-C14	33	0	0.0374	47.1	31.75	30.8	9.914	0.3122	-0.7345
MW-C15	33	0	0.0699	128	54.3	52.1	22.12	0.4074	0.7224
MW-C3	33	0	0.0562	115	39.27	35.3	19.98	0.5089	1.615
MW-C4	33	0	0.0674	129	54.09	54	21.52	0.3978	0.8506
MW-C18	7	0	34.9	69	44.43	42.3	11.33	0.2549	1.672
MW-C19	7	0	31	74.9	57.99	62.9	16.32	0.2814	-0.6861

Summary Report

Constituent: Methane Analysis Run 9/24/2019 10:37 AM View: Histograms
 OU3 HBR Client: Geotechnology Data: OU3 Master Data File

For observations made between 8/25/2008 and 8/30/2019, a summary of the selected data set:

Observations = 573

ND/Trace = 49

Wells = 19

Minimum Value = 0.5

Maximum Value = 5650

Mean Value = 163.7

Median Value = 25.1

Standard Deviation = 507.7

Coefficient of Variation = 3.102

Skewness = 7.365

<u>Well</u>	<u>#Obs.</u>	<u>ND/Trace</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>Median</u>	<u>Std.Dev.</u>	<u>CV</u>	<u>Skewness</u>
MW-C10	33	4	1	37.6	4.591	3.3	6.245	1.36	4.659
MW-C11	33	0	3.4	375	69.08	28.2	102.6	1.485	2.071
MW-C5	33	1	1	15.9	5.655	5	3.419	0.6046	1.417
MW-C6	33	0	3	5020	246.1	16.2	901.9	3.665	4.763
MW-C9	33	30	0.5	2.5	1.148	1	0.4395	0.3827	1.617
MW-C1	32	0	2	54.9	16.33	12.2	12.93	0.7915	1.48
MW-C16	33	0	11.2	686	142.8	87.1	164.9	1.155	1.893
MW-C17	33	2	1	1400	217.8	30.1	381.9	1.753	2.051
MW-C2	32	0	4.8	135	39.64	29.85	31.15	0.7858	1.54
MW-C7	33	0	4.8	83.9	25.99	17.7	20.02	0.7703	1.323
MW-C8	33	1	2	1170	141.8	77.4	202.5	1.428	4.187
MW-C12	33	0	4.2	58	22.45	21.8	15.24	0.6792	0.6807
MW-C13	33	0	22.3	1020	185.6	142	192.7	1.038	2.578
MW-C14	33	8	1	41.9	5.836	2.5	9.209	1.578	2.957
MW-C15	33	0	71.9	1900	623.8	660	375.1	0.6013	1.132
MW-C3	33	0	9.4	5650	442.4	66.5	1197	2.705	3.599
MW-C4	33	0	23	5300	632.9	292	1106	1.747	2.952
MW-C18	7	0	18.3	34.8	24.61	25.4	5.678	0.2307	0.6007
MW-C19	7	0	21.6	132	67.93	70.4	38.03	0.5599	0.3857

Summary Report

Constituent: Nitrogen Nitrate [as N] Analysis Run 9/24/2019 10:37 AM View: Histograms
 OU3 HBR Client: Geotechnology Data: OU3 Master Data File

For observations made between 8/25/2008 and 8/30/2019, a summary of the selected data set:

Observations = 573

ND/Trace = 439

Wells = 19

Minimum Value = 0.000025

Maximum Value = 13

Mean Value = 0.2105

Median Value = 0.025

Standard Deviation = 0.8713

Coefficient of Variation = 4.139

Skewness = 9.41

<u>Well</u>	<u>#Obs.</u>	<u>ND/Trace</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>Median</u>	<u>Std.Dev.</u>	<u>CV</u>	<u>Skewness</u>
MW-C10	33	24	0.000025	0.31	0.041	0.025	0.0694	1.693	3.549
MW-C11	33	25	0.0001	0.161	0.03037	0.025	0.02686	0.8845	3.787
MW-C5	33	25	0.000025	0.043	0.02415	0.025	0.007231	0.2994	-0.6444
MW-C6	33	26	0.000025	0.055	0.02418	0.025	0.007782	0.3218	0.7416
MW-C9	33	4	0.000025	5.8	0.7793	0.179	1.241	1.592	2.457
MW-C1	32	22	0.000025	0.24	0.03784	0.025	0.04837	1.278	3.408
MW-C16	33	23	0.000025	0.125	0.02952	0.025	0.02084	0.7061	3.125
MW-C17	33	19	0.000025	1.6	0.152	0.025	0.3336	2.194	3.222
MW-C2	32	24	0.000025	0.115	0.03047	0.025	0.02135	0.7008	2.474
MW-C7	33	26	0.000025	0.1	0.02485	0.025	0.01503	0.6049	3.72
MW-C8	33	27	0.000025	0.142	0.02715	0.025	0.02174	0.8006	4.571
MW-C12	33	16	0.00027	0.64	0.1248	0.025	0.1859	1.49	1.887
MW-C13	33	21	0.000025	1.09	0.06867	0.025	0.1851	2.695	5.326
MW-C14	33	0	0.0019	13	2.154	1.35	2.676	1.242	2.882
MW-C15	33	24	0.000025	0.107	0.02939	0.025	0.01845	0.6276	2.658
MW-C3	33	25	0.000025	0.048	0.02433	0.025	0.007778	0.3197	-0.08844
MW-C4	33	25	0.000025	0.44	0.03997	0.025	0.07449	1.864	4.935
MW-C18	7	6	0.012	0.025	0.02314	0.025	0.004914	0.2123	-2.041
MW-C19	7	2	0.01	0.194	0.04986	0.025	0.06629	1.33	1.74

Summary Report

Constituent: ORP Analysis Run 9/24/2019 10:37 AM View: Histograms
 OU3 HBR Client: Geotechnology Data: OU3 Master Data File

For observations made between 8/25/2008 and 8/30/2019, a summary of the selected data set:

Observations = 552

ND/Trace = 0

Wells = 19

Minimum Value = -245

Maximum Value = 490.9

Mean Value = -77.95

Median Value = -93

Standard Deviation = 81.45

Coefficient of Variation = -1.045

Skewness = 2.316

<u>Well</u>	<u>#Obs.</u>	<u>ND/Trace</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>Median</u>	<u>Std.Dev.</u>	<u>CV</u>	<u>Skewness</u>
MW-C10	32	0	-212	135	-100.9	-111.9	71.62	-0.7096	1.565
MW-C11	32	0	-207	158.7	-90.18	-97	64.46	-0.7148	1.853
MW-C5	32	0	-192	204.1	-58.85	-66.75	79.82	-1.356	1.715
MW-C6	32	0	-205	130.8	-95.4	-96.5	61.42	-0.6438	1.476
MW-C9	32	0	-159	458.4	-6.088	-31	121.2	-19.91	1.89
MW-C1	31	0	-196	155.7	-97.63	-101	60.31	-0.6178	2.18
MW-C16	31	0	-190	189	-77.6	-92.44	77.15	-0.9942	1.737
MW-C17	31	0	-156	176	-76.8	-101.3	75.1	-0.9779	1.549
MW-C2	31	0	-212	180	-96.56	-99.39	68.36	-0.7079	2.059
MW-C7	32	0	-159	214.1	-30.98	-36	69.8	-2.253	1.439
MW-C8	30	0	-186	259.4	-76.57	-93.16	85.27	-1.114	2.333
MW-C12	32	0	-206	212.3	-92.47	-95.17	70.23	-0.7595	2.455
MW-C13	32	0	-171	50.9	-106.8	-110	44.72	-0.4186	1.239
MW-C14	32	0	-142	490.9	-3.362	-36.5	129.6	-38.56	2.119
MW-C15	32	0	-214	28.5	-116	-114.5	49.4	-0.426	0.5449
MW-C3	32	0	-223	8	-102.1	-100.9	51.58	-0.5053	-0.003821
MW-C4	32	0	-245	18.2	-109.1	-110.5	48.54	-0.4451	-0.1483
MW-C18	7	0	-100	87	-45.74	-74.72	66	-1.443	1.331
MW-C19	7	0	-103	88.92	-58.8	-79.26	66.95	-1.139	1.818

Summary Report

Constituent: Sulfate Analysis Run 9/24/2019 10:37 AM View: Histograms
 OU3 HBR Client: Geotechnology Data: OU3 Master Data File

For observations made between 8/25/2008 and 8/30/2019, a summary of the selected data set:

Observations = 573

ND/Trace = 7

Wells = 19

Minimum Value = 0.013

Maximum Value = 195

Mean Value = 78.37

Median Value = 66

Standard Deviation = 50.65

Coefficient of Variation = 0.6463

Skewness = 0.4056

<u>Well</u>	<u>#Obs.</u>	<u>ND/Trace</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>Median</u>	<u>Std.Dev.</u>	<u>CV</u>	<u>Skewness</u>
MW-C10	33	0	0.162	170	138.8	144	27.48	0.198	-3.984
MW-C11	33	0	0.082	123	91.24	94	24.71	0.2708	-1.328
MW-C5	33	0	0.05	71	49.43	47	13.54	0.2739	-1.129
MW-C6	33	0	0.046	72	46.91	46	14.59	0.3109	-1.099
MW-C9	33	0	0.175	169	148.6	153	28.11	0.1892	-4.637
MW-C1	32	0	0.058	94	63.72	68	18.62	0.2921	-1.58
MW-C16	33	0	0.022	100	44.52	42	24.3	0.5458	0.4416
MW-C17	33	2	0.034	112	58	50	37.51	0.6467	0.05304
MW-C2	32	0	0.022	67	36.19	33.5	13.4	0.3702	0.292
MW-C7	33	0	0.024	64	36.49	32	12.87	0.3529	0.2474
MW-C8	33	0	0.088	138	80.06	82	23.67	0.2957	-0.7255
MW-C12	33	0	0.177	171	138.1	144	29.48	0.2134	-3.186
MW-C13	33	0	0.148	174	120.6	135	39.65	0.3287	-1.235
MW-C14	33	0	0.198	195	158.3	163	32.43	0.2048	-3.563
MW-C15	33	1	0.077	163	70.97	57	40.12	0.5653	0.4953
MW-C3	33	0	0.061	82	51.49	52	19.91	0.3867	-0.8964
MW-C4	33	2	0.013	26	14.12	15	6.574	0.4656	-0.1127
MW-C18	7	0	52	75	66	69	8.869	0.1344	-0.7663
MW-C19	7	0	9	15	11	10	2.16	0.1964	1.071



APPENDIX C

ANALYTICAL LABORATORY REPORTS

September 10, 2019

Kenny Hemmen
Geotechnology, Inc.
11816 Lackland Road
St. Louis, MO 63146
TEL: (314) 997-7440
FAX: (314) 997-2067



RE: Hayford Bridge J006295.07

WorkOrder: 19082091

Dear Kenny Hemmen:

TEKLAB, INC received 8 samples on 8/30/2019 3:50:00 PM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,



Emily Pohlman
Project Manager
(618)344-1004 ex 44
epohlman@teklabinc.com

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

This reporting package includes the following:

Cover Letter	1
Report Contents	2
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Case Narrative	4
Accreditations	5
Laboratory Results	6
Sample Summary	30
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Chain of Custody	Appended

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Abbr Definition

* Analytes on report marked with an asterisk are not NELAP accredited

CCV Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.

CRQL A Client Requested Quantitation Limit is a reporting limit that varies according to customer request. The CRQL may not be less than the MDL.

DF Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilution factors.

DNI Did not ignite

DUP Laboratory duplicate is a replicate aliquot prepared under the same laboratory conditions and independently analyzed to obtain a measure of precision.

ICV Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.

IDPH IL Dept. of Public Health

LCS Laboratory control sample is a sample matrix, free from the analytes of interest,spiked with verified known amounts of analytes and analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system.

LCSD Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).

MBLK Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.

MDL "The method detection limit is defined as the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results."

MS Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).

MSD Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).

MW Molecular weight

ND Not Detected at the Reporting Limit

NELAP NELAP Accredited

PQL Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions.

RL The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.

RPD Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).

SPK The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.

Surrogate Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.

TIC Tentatively identified compound: Analytes tentatively identified in the sample by using a library search. Only results not in the calibration standard will be reported as tentatively identified compounds. Results for tentatively identified compounds that are not present in the calibration standard, but are assigned a specific chemical name based upon the library search, are calculated using total peak areas from reconstructed ion chromatograms and a response factor of one. The nearest Internal Standard is used for the calculation. The results of any TICs must be considered estimated, and are flagged with a "T". If the estimated result is above the calibration range it is flagged "ET"

TNTC Too numerous to count (> 200 CFU)

Qualifiers

- Unknown hydrocarbon

B - Analyte detected in associated Method Blank

C - RL shown is a Client Requested Quantitation Limit

E - Value above quantitation range

H - Holding times exceeded

I - Associated internal standard was outside method criteria

J - Analyte detected below quantitation limits

M - Manual Integration used to determine area response

ND - Not Detected at the Reporting Limit

R - RPD outside accepted recovery limits

S - Spike Recovery outside recovery limits

T - TIC(Tentatively identified compound)

X - Value exceeds Maximum Contaminant Level



Case Narrative

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Client Project: Hayford Bridge J006295.07

Work Order: 19082091

Report Date: 10-Sep-2019

Cooler Receipt Temp: 5.0 °C

Locations

Collinsville	
Address	5445 Horseshoe Lake Road Collinsville, IL 62234-7425
Phone	(618) 344-1004
Fax	(618) 344-1005
Email	jhriley@teklabinc.com

Collinsville Air	
Address	5445 Horseshoe Lake Road Collinsville, IL 62234-7425
Phone	(618) 344-1004
Fax	(618) 344-1005
Email	EHurley@teklabinc.com

Springfield	
Address	3920 Pintail Dr Springfield, IL 62711-9415
Phone	(217) 698-1004
Fax	(217) 698-1005
Email	KKlostermann@teklabinc.com

Chicago	
Address	1319 Butterfield Rd. Downers Grove, IL 60515
Phone	(630) 324-6855
Fax	
Email	arenner@teklabinc.com

Kansas City	
Address	8421 Nieman Road Lenexa, KS 66214
Phone	(913) 541-1998
Fax	(913) 541-1998
Email	jhriley@teklabinc.com

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2020	Collinsville
Kansas	KDHE	E-10374	NELAP	4/30/2020	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2020	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2020	Collinsville
Oklahoma	ODEQ	9978	NELAP	8/31/2020	Collinsville
Arkansas	ADEQ	88-0966		3/14/2020	Collinsville
Illinois	IDPH	17584		5/31/2019	Collinsville
Indiana	ISDH	C-IL-06		1/31/2020	Collinsville
Kentucky	KDEP	98006		12/31/2019	Collinsville
Kentucky	UST	0073		1/31/2020	Collinsville
Louisiana	LDPH	LA016		12/31/2019	Collinsville
Missouri	MDNR	930		1/31/2022	Collinsville
Missouri	MDNR	00930		5/31/2019	Collinsville
Tennessee	TDEC	04905		1/31/2020	Collinsville

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19082091-001

Client Sample ID: EFF

Matrix: GROUNDWATER

Collection Date: 08/29/2019 8:50

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 3510C,8270C, SEMI-VOLATILE ORGANIC COMPOUNDS								
1,4-Dioxane	*	0.00100		ND	mg/L	1	09/04/2019 21:46	156900
Surr: 2-Fluorobiphenyl	*	21.4-142		57.5	%REC	1	09/04/2019 21:46	156900
Surr: Nitrobenzene-d5	*	15-163		65.4	%REC	1	09/04/2019 21:46	156900
Surr: p-Terphenyl-d14	*	10-173		84.1	%REC	1	09/04/2019 21:46	156900
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
1,1,1-Trichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
1,1,2,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
1,1,2-Trichloro-1,2,2-trifluoroethane	*	5.0		ND	µg/L	1	09/04/2019 14:01	156975
1,1,2-Trichloroethane	NELAP	0.5		ND	µg/L	1	09/04/2019 14:01	156975
1,1-Dichloro-2-propanone	*	30.0		ND	µg/L	1	09/04/2019 14:01	156975
1,1-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
1,1-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
1,1-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
1,2,3-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
1,2,3-Trichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
1,2,3-Trimethylbenzene	*	2.0		ND	µg/L	1	09/04/2019 14:01	156975
1,2,4-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
1,2,4-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
1,2-Dibromo-3-chloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
1,2-Dibromoethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
1,2-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
1,2-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
1,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
1,3,5-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
1,3-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
1,3-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
1,4-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
1-Chlorobutane	NELAP	5.0		ND	µg/L	1	09/04/2019 14:01	156975
2,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
2-Butanone	NELAP	10.0		ND	µg/L	1	09/04/2019 14:01	156975
2-Chloroethyl vinyl ether	NELAP	5.0		ND	µg/L	1	09/04/2019 14:01	156975
2-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
2-Hexanone	NELAP	10.0		ND	µg/L	1	09/04/2019 14:01	156975
2-Nitropropane	NELAP	10.0		ND	µg/L	1	09/04/2019 14:01	156975
4-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
4-Methyl-2-pentanone	NELAP	10.0		ND	µg/L	1	09/04/2019 14:01	156975
Acetone	NELAP	10	J	8.0	µg/L	1	09/04/2019 14:01	156975
Acetonitrile	NELAP	10.0		ND	µg/L	1	09/04/2019 14:01	156975
Acrolein	NELAP	20.0		ND	µg/L	1	09/04/2019 14:01	156975
Acrylonitrile	NELAP	5.0		ND	µg/L	1	09/04/2019 14:01	156975
Allyl chloride	NELAP	5.0		ND	µg/L	1	09/04/2019 14:01	156975
Benzene	NELAP	0.5		ND	µg/L	1	09/04/2019 14:01	156975
Bromobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
Bromochloromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
Bromodichloromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
Bromoform	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19082091-001

Client Sample ID: EFF

Matrix: GROUNDWATER

Collection Date: 08/29/2019 8:50

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
Bromomethane	NELAP	5.0		ND	µg/L	1	09/04/2019 14:01	156975
Carbon disulfide	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
Carbon tetrachloride	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
Chlorobenzene	NELAP	2.0	J	0.4	µg/L	1	09/04/2019 14:01	156975
Chloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
Chloroform	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
Chloromethane	NELAP	5.0		ND	µg/L	1	09/04/2019 14:01	156975
Chloroprene	NELAP	5.0		ND	µg/L	1	09/04/2019 14:01	156975
cis-1,2-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
cis-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
cis-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
Cyclohexanone	*	20.0		ND	µg/L	1	09/04/2019 14:01	156975
Dibromochloromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
Dibromomethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
Dichlorodifluoromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
Ethyl acetate	NELAP	10.0		ND	µg/L	1	09/04/2019 14:01	156975
Ethyl ether	NELAP	5.0		ND	µg/L	1	09/04/2019 14:01	156975
Ethyl methacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 14:01	156975
Ethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
Hexachlorobutadiene	NELAP	5.0		ND	µg/L	1	09/04/2019 14:01	156975
Hexachloroethane	NELAP	5.0		ND	µg/L	1	09/04/2019 14:01	156975
Iodomethane	NELAP	5.0		ND	µg/L	1	09/04/2019 14:01	156975
Isopropylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
m,p-Xylenes	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
Methacrylonitrile	NELAP	5.0		ND	µg/L	1	09/04/2019 14:01	156975
Methyl Methacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 14:01	156975
Methyl tert-butyl ether	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
Methylacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 14:01	156975
Methylene chloride	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
Naphthalene	NELAP	5.0		ND	µg/L	1	09/04/2019 14:01	156975
n-Butyl acetate	*	2.0		ND	µg/L	1	09/04/2019 14:01	156975
n-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
n-Heptane	*	5.0		ND	µg/L	1	09/04/2019 14:01	156975
n-Hexane	*	5.0		ND	µg/L	1	09/04/2019 14:01	156975
Nitrobenzene	NELAP	50.0		ND	µg/L	1	09/04/2019 14:01	156975
n-Propylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
o-Xylene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
Pentachloroethane	NELAP	5.0		ND	µg/L	1	09/04/2019 14:01	156975
p-Isopropyltoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
Propionitrile	NELAP	10.0		ND	µg/L	1	09/04/2019 14:01	156975
sec-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
Styrene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
tert-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
Tetrachloroethene	NELAP	0.5		ND	µg/L	1	09/04/2019 14:01	156975
Tetrahydrofuran	NELAP	5.0		ND	µg/L	1	09/04/2019 14:01	156975
Toluene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
trans-1,2-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975



Laboratory Results

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Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19082091-001

Client Sample ID: EFF

Matrix: GROUNDWATER

Collection Date: 08/29/2019 8:50

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
trans-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
trans-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
Trichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
Trichlorofluoromethane	NELAP	5.0		ND	µg/L	1	09/04/2019 14:01	156975
Vinyl acetate	NELAP	5.0		ND	µg/L	1	09/04/2019 14:01	156975
Vinyl chloride	NELAP	2.0		ND	µg/L	1	09/04/2019 14:01	156975
Surr: 1,2-Dichloroethane-d4	*	79.6-118		101.3	%REC	1	09/04/2019 14:01	156975
Surr: 4-Bromofluorobenzene	*	83.9-115		100.0	%REC	1	09/04/2019 14:01	156975
Surr: Dibromofluoromethane	*	84.9-113		98.2	%REC	1	09/04/2019 14:01	156975
Surr: Toluene-d8	*	86.7-112		100.1	%REC	1	09/04/2019 14:01	156975

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19082091-002

Client Sample ID: W-8

Matrix: GROUNDWATER

Collection Date: 08/29/2019 9:10

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 3510C,8270C, SEMI-VOLATILE ORGANIC COMPOUNDS								
1,4-Dioxane	*	0.00100		ND	mg/L	1	09/04/2019 22:25	156900
Surr: 2-Fluorobiphenyl	*	21.4-142		56.1	%REC	1	09/04/2019 22:25	156900
Surr: Nitrobenzene-d5	*	15-163		59.5	%REC	1	09/04/2019 22:25	156900
Surr: p-Terphenyl-d14	*	10-173		79.5	%REC	1	09/04/2019 22:25	156900
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
1,1,1-Trichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
1,1,2,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
1,1,2-Trichloro-1,2,2-trifluoroethane	*	5.0		ND	µg/L	1	09/04/2019 14:28	156975
1,1,2-Trichloroethane	NELAP	0.5		ND	µg/L	1	09/04/2019 14:28	156975
1,1-Dichloro-2-propanone	*	30.0		ND	µg/L	1	09/04/2019 14:28	156975
1,1-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
1,1-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
1,1-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
1,2,3-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
1,2,3-Trichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
1,2,3-Trimethylbenzene	*	2.0		ND	µg/L	1	09/04/2019 14:28	156975
1,2,4-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
1,2,4-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
1,2-Dibromo-3-chloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
1,2-Dibromoethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
1,2-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
1,2-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
1,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
1,3,5-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
1,3-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
1,3-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
1,4-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
1-Chlorobutane	NELAP	5.0		ND	µg/L	1	09/04/2019 14:28	156975
2,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
2-Butanone	NELAP	10.0		ND	µg/L	1	09/04/2019 14:28	156975
2-Chloroethyl vinyl ether	NELAP	5.0		ND	µg/L	1	09/04/2019 14:28	156975
2-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
2-Hexanone	NELAP	10.0		ND	µg/L	1	09/04/2019 14:28	156975
2-Nitropropane	NELAP	10.0		ND	µg/L	1	09/04/2019 14:28	156975
4-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
4-Methyl-2-pentanone	NELAP	10.0		ND	µg/L	1	09/04/2019 14:28	156975
Acetone	NELAP	10	J	5.1	µg/L	1	09/04/2019 14:28	156975
Acetonitrile	NELAP	10.0		ND	µg/L	1	09/04/2019 14:28	156975
Acrolein	NELAP	20.0		ND	µg/L	1	09/04/2019 14:28	156975
Acrylonitrile	NELAP	5.0		ND	µg/L	1	09/04/2019 14:28	156975
Allyl chloride	NELAP	5.0		ND	µg/L	1	09/04/2019 14:28	156975
Benzene	NELAP	0.5		ND	µg/L	1	09/04/2019 14:28	156975
Bromobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
Bromochloromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
Bromodichloromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
Bromoform	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19082091-002

Client Sample ID: W-8

Matrix: GROUNDWATER

Collection Date: 08/29/2019 9:10

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
Bromomethane	NELAP	5.0		ND	µg/L	1	09/04/2019 14:28	156975
Carbon disulfide	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
Carbon tetrachloride	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
Chlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
Chloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
Chloroform	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
Chloromethane	NELAP	5.0		ND	µg/L	1	09/04/2019 14:28	156975
Chloroprene	NELAP	5.0		ND	µg/L	1	09/04/2019 14:28	156975
cis-1,2-Dichloroethene	NELAP	2.0	J	0.4	µg/L	1	09/04/2019 14:28	156975
cis-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
cis-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
Cyclohexanone	*	20.0		ND	µg/L	1	09/04/2019 14:28	156975
Dibromochloromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
Dibromomethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
Dichlorodifluoromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
Ethyl acetate	NELAP	10.0		ND	µg/L	1	09/04/2019 14:28	156975
Ethyl ether	NELAP	5.0		ND	µg/L	1	09/04/2019 14:28	156975
Ethyl methacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 14:28	156975
Ethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
Hexachlorobutadiene	NELAP	5.0		ND	µg/L	1	09/04/2019 14:28	156975
Hexachloroethane	NELAP	5.0		ND	µg/L	1	09/04/2019 14:28	156975
Iodomethane	NELAP	5.0		ND	µg/L	1	09/04/2019 14:28	156975
Isopropylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
m,p-Xylenes	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
Methacrylonitrile	NELAP	5.0		ND	µg/L	1	09/04/2019 14:28	156975
Methyl Methacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 14:28	156975
Methyl tert-butyl ether	NELAP	2.0	J	0.1	µg/L	1	09/04/2019 14:28	156975
Methylacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 14:28	156975
Methylene chloride	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
Naphthalene	NELAP	5.0		ND	µg/L	1	09/04/2019 14:28	156975
n-Butyl acetate	*	2.0		ND	µg/L	1	09/04/2019 14:28	156975
n-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
n-Heptane	*	5.0		ND	µg/L	1	09/04/2019 14:28	156975
n-Hexane	*	5.0		ND	µg/L	1	09/04/2019 14:28	156975
Nitrobenzene	NELAP	50.0		ND	µg/L	1	09/04/2019 14:28	156975
n-Propylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
o-Xylene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
Pentachloroethane	NELAP	5.0		ND	µg/L	1	09/04/2019 14:28	156975
p-Isopropyltoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
Propionitrile	NELAP	10.0		ND	µg/L	1	09/04/2019 14:28	156975
sec-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
Styrene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
tert-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
Tetrachloroethene	NELAP	0.5		ND	µg/L	1	09/04/2019 14:28	156975
Tetrahydrofuran	NELAP	5.0		ND	µg/L	1	09/04/2019 14:28	156975
Toluene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
trans-1,2-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975



Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19082091-002

Client Sample ID: W-8

Matrix: GROUNDWATER

Collection Date: 08/29/2019 9:10

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
trans-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
trans-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
Trichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:28	156975
Trichlorofluoromethane	NELAP	5.0		ND	µg/L	1	09/04/2019 14:28	156975
Vinyl acetate	NELAP	5.0		ND	µg/L	1	09/04/2019 14:28	156975
Vinyl chloride	NELAP	2.0	J	0.4	µg/L	1	09/04/2019 14:28	156975
Surr: 1,2-Dichloroethane-d4	*	79.6-118		101.5	%REC	1	09/04/2019 14:28	156975
Surr: 4-Bromofluorobenzene	*	83.9-115		101.8	%REC	1	09/04/2019 14:28	156975
Surr: Dibromofluoromethane	*	84.9-113		98.4	%REC	1	09/04/2019 14:28	156975
Surr: Toluene-d8	*	86.7-112		100.1	%REC	1	09/04/2019 14:28	156975

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19082091-003

Client Sample ID: W-10

Matrix: GROUNDWATER

Collection Date: 08/29/2019 9:25

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 3510C,8270C, SEMI-VOLATILE ORGANIC COMPOUNDS								
1,4-Dioxane	*	0.00100		0.00126	mg/L	1	09/04/2019 23:03	156900
Surr: 2-Fluorobiphenyl	*	21.4-142		57.0	%REC	1	09/04/2019 23:03	156900
Surr: Nitrobenzene-d5	*	15-163		59.7	%REC	1	09/04/2019 23:03	156900
Surr: p-Terphenyl-d14	*	10-173		75.4	%REC	1	09/04/2019 23:03	156900
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
1,1,1-Trichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
1,1,2,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
1,1,2-Trichloro-1,2,2-trifluoroethane	*	5.0		ND	µg/L	1	09/04/2019 14:54	156975
1,1,2-Trichloroethane	NELAP	0.5		ND	µg/L	1	09/04/2019 14:54	156975
1,1-Dichloro-2-propanone	*	30.0		ND	µg/L	1	09/04/2019 14:54	156975
1,1-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
1,1-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
1,1-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
1,2,3-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
1,2,3-Trichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
1,2,3-Trimethylbenzene	*	2.0		ND	µg/L	1	09/04/2019 14:54	156975
1,2,4-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
1,2,4-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
1,2-Dibromo-3-chloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
1,2-Dibromoethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
1,2-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
1,2-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
1,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
1,3,5-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
1,3-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
1,3-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
1,4-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
1-Chlorobutane	NELAP	5.0		ND	µg/L	1	09/04/2019 14:54	156975
2,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
2-Butanone	NELAP	10.0		ND	µg/L	1	09/04/2019 14:54	156975
2-Chloroethyl vinyl ether	NELAP	5.0		ND	µg/L	1	09/04/2019 14:54	156975
2-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
2-Hexanone	NELAP	10.0		ND	µg/L	1	09/04/2019 14:54	156975
2-Nitropropane	NELAP	10.0		ND	µg/L	1	09/04/2019 14:54	156975
4-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
4-Methyl-2-pentanone	NELAP	10.0		ND	µg/L	1	09/04/2019 14:54	156975
Acetone	NELAP	10	J	4.7	µg/L	1	09/04/2019 14:54	156975
Acetonitrile	NELAP	10.0		ND	µg/L	1	09/04/2019 14:54	156975
Acrolein	NELAP	20.0		ND	µg/L	1	09/04/2019 14:54	156975
Acrylonitrile	NELAP	5.0		ND	µg/L	1	09/04/2019 14:54	156975
Allyl chloride	NELAP	5.0		ND	µg/L	1	09/04/2019 14:54	156975
Benzene	NELAP	0.5		ND	µg/L	1	09/04/2019 14:54	156975
Bromobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
Bromochloromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
Bromodichloromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
Bromoform	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19082091-003

Client Sample ID: W-10

Matrix: GROUNDWATER

Collection Date: 08/29/2019 9:25

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
Bromomethane	NELAP	5.0		ND	µg/L	1	09/04/2019 14:54	156975
Carbon disulfide	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
Carbon tetrachloride	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
Chlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
Chloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
Chloroform	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
Chloromethane	NELAP	5.0		ND	µg/L	1	09/04/2019 14:54	156975
Chloroprene	NELAP	5.0		ND	µg/L	1	09/04/2019 14:54	156975
cis-1,2-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
cis-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
cis-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
Cyclohexanone	*	20.0		ND	µg/L	1	09/04/2019 14:54	156975
Dibromochloromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
Dibromomethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
Dichlorodifluoromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
Ethyl acetate	NELAP	10.0		ND	µg/L	1	09/04/2019 14:54	156975
Ethyl ether	NELAP	5.0		ND	µg/L	1	09/04/2019 14:54	156975
Ethyl methacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 14:54	156975
Ethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
Hexachlorobutadiene	NELAP	5.0		ND	µg/L	1	09/04/2019 14:54	156975
Hexachloroethane	NELAP	5.0		ND	µg/L	1	09/04/2019 14:54	156975
Iodomethane	NELAP	5.0		ND	µg/L	1	09/04/2019 14:54	156975
Isopropylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
m,p-Xylenes	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
Methacrylonitrile	NELAP	5.0		ND	µg/L	1	09/04/2019 14:54	156975
Methyl Methacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 14:54	156975
Methyl tert-butyl ether	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
Methylacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 14:54	156975
Methylene chloride	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
Naphthalene	NELAP	5.0		ND	µg/L	1	09/04/2019 14:54	156975
n-Butyl acetate	*	2.0		ND	µg/L	1	09/04/2019 14:54	156975
n-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
n-Heptane	*	5.0		ND	µg/L	1	09/04/2019 14:54	156975
n-Hexane	*	5.0		ND	µg/L	1	09/04/2019 14:54	156975
Nitrobenzene	NELAP	50.0		ND	µg/L	1	09/04/2019 14:54	156975
n-Propylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
o-Xylene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
Pentachloroethane	NELAP	5.0		ND	µg/L	1	09/04/2019 14:54	156975
p-Isopropyltoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
Propionitrile	NELAP	10.0		ND	µg/L	1	09/04/2019 14:54	156975
sec-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
Styrene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
tert-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
Tetrachloroethene	NELAP	0.5		ND	µg/L	1	09/04/2019 14:54	156975
Tetrahydrofuran	NELAP	5.0		ND	µg/L	1	09/04/2019 14:54	156975
Toluene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
trans-1,2-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975



Laboratory Results

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Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19082091-003

Client Sample ID: W-10

Matrix: GROUNDWATER

Collection Date: 08/29/2019 9:25

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
trans-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
trans-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
Trichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
Trichlorofluoromethane	NELAP	5.0		ND	µg/L	1	09/04/2019 14:54	156975
Vinyl acetate	NELAP	5.0		ND	µg/L	1	09/04/2019 14:54	156975
Vinyl chloride	NELAP	2.0		ND	µg/L	1	09/04/2019 14:54	156975
Surr: 1,2-Dichloroethane-d4	*	79.6-118		101.1	%REC	1	09/04/2019 14:54	156975
Surr: 4-Bromofluorobenzene	*	83.9-115		99.8	%REC	1	09/04/2019 14:54	156975
Surr: Dibromofluoromethane	*	84.9-113		99.4	%REC	1	09/04/2019 14:54	156975
Surr: Toluene-d8	*	86.7-112		99.6	%REC	1	09/04/2019 14:54	156975

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19082091-004

Client Sample ID: W-9

Matrix: GROUNDWATER

Collection Date: 08/29/2019 9:40

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 3510C,8270C, SEMI-VOLATILE ORGANIC COMPOUNDS								
1,4-Dioxane	*	0.00100		ND	mg/L	1	09/05/2019 1:36	156900
Surr: 2-Fluorobiphenyl	*	21.4-142		54.2	%REC	1	09/05/2019 1:36	156900
Surr: Nitrobenzene-d5	*	15-163		57.2	%REC	1	09/05/2019 1:36	156900
Surr: p-Terphenyl-d14	*	10-173		68.8	%REC	1	09/05/2019 1:36	156900
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
1,1,1-Trichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
1,1,2,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
1,1,2-Trichloro-1,2,2-trifluoroethane	*	5.0		ND	µg/L	1	09/04/2019 15:21	156975
1,1,2-Trichloroethane	NELAP	0.5		ND	µg/L	1	09/04/2019 15:21	156975
1,1-Dichloro-2-propanone	*	30.0		ND	µg/L	1	09/04/2019 15:21	156975
1,1-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
1,1-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
1,1-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
1,2,3-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
1,2,3-Trichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
1,2,3-Trimethylbenzene	*	2.0		ND	µg/L	1	09/04/2019 15:21	156975
1,2,4-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
1,2,4-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
1,2-Dibromo-3-chloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
1,2-Dibromoethane	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
1,2-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
1,2-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
1,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
1,3,5-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
1,3-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
1,3-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
1,4-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
1-Chlorobutane	NELAP	5.0		ND	µg/L	1	09/04/2019 15:21	156975
2,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
2-Butanone	NELAP	10.0		ND	µg/L	1	09/04/2019 15:21	156975
2-Chloroethyl vinyl ether	NELAP	5.0		ND	µg/L	1	09/04/2019 15:21	156975
2-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
2-Hexanone	NELAP	10.0		ND	µg/L	1	09/04/2019 15:21	156975
2-Nitropropane	NELAP	10.0		ND	µg/L	1	09/04/2019 15:21	156975
4-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
4-Methyl-2-pentanone	NELAP	10.0		ND	µg/L	1	09/04/2019 15:21	156975
Acetone	NELAP	10	J	4.4	µg/L	1	09/04/2019 15:21	156975
Acetonitrile	NELAP	10.0		ND	µg/L	1	09/04/2019 15:21	156975
Acrolein	NELAP	20.0		ND	µg/L	1	09/04/2019 15:21	156975
Acrylonitrile	NELAP	5.0		ND	µg/L	1	09/04/2019 15:21	156975
Allyl chloride	NELAP	5.0		ND	µg/L	1	09/04/2019 15:21	156975
Benzene	NELAP	0.5		ND	µg/L	1	09/04/2019 15:21	156975
Bromobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
Bromochloromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
Bromodichloromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
Bromoform	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19082091-004

Client Sample ID: W-9

Matrix: GROUNDWATER

Collection Date: 08/29/2019 9:40

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
Bromomethane	NELAP	5.0		ND	µg/L	1	09/04/2019 15:21	156975
Carbon disulfide	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
Carbon tetrachloride	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
Chlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
Chloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
Chloroform	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
Chloromethane	NELAP	5.0		ND	µg/L	1	09/04/2019 15:21	156975
Chloroprene	NELAP	5.0		ND	µg/L	1	09/04/2019 15:21	156975
cis-1,2-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
cis-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
cis-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
Cyclohexanone	*	20.0		ND	µg/L	1	09/04/2019 15:21	156975
Dibromochloromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
Dibromomethane	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
Dichlorodifluoromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
Ethyl acetate	NELAP	10.0		ND	µg/L	1	09/04/2019 15:21	156975
Ethyl ether	NELAP	5.0		ND	µg/L	1	09/04/2019 15:21	156975
Ethyl methacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 15:21	156975
Ethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
Hexachlorobutadiene	NELAP	5.0		ND	µg/L	1	09/04/2019 15:21	156975
Hexachloroethane	NELAP	5.0		ND	µg/L	1	09/04/2019 15:21	156975
Iodomethane	NELAP	5.0		ND	µg/L	1	09/04/2019 15:21	156975
Isopropylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
m,p-Xylenes	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
Methacrylonitrile	NELAP	5.0		ND	µg/L	1	09/04/2019 15:21	156975
Methyl Methacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 15:21	156975
Methyl tert-butyl ether	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
Methylacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 15:21	156975
Methylene chloride	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
Naphthalene	NELAP	5.0		ND	µg/L	1	09/04/2019 15:21	156975
n-Butyl acetate	*	2.0		ND	µg/L	1	09/04/2019 15:21	156975
n-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
n-Heptane	*	5.0		ND	µg/L	1	09/04/2019 15:21	156975
n-Hexane	*	5.0		ND	µg/L	1	09/04/2019 15:21	156975
Nitrobenzene	NELAP	50.0		ND	µg/L	1	09/04/2019 15:21	156975
n-Propylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
o-Xylene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
Pentachloroethane	NELAP	5.0		ND	µg/L	1	09/04/2019 15:21	156975
p-Isopropyltoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
Propionitrile	NELAP	10.0		ND	µg/L	1	09/04/2019 15:21	156975
sec-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
Styrene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
tert-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
Tetrachloroethene	NELAP	0.5		ND	µg/L	1	09/04/2019 15:21	156975
Tetrahydrofuran	NELAP	5.0		ND	µg/L	1	09/04/2019 15:21	156975
Toluene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
trans-1,2-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975



Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19082091-004

Client Sample ID: W-9

Matrix: GROUNDWATER

Collection Date: 08/29/2019 9:40

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
trans-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
trans-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
Trichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
Trichlorofluoromethane	NELAP	5.0		ND	µg/L	1	09/04/2019 15:21	156975
Vinyl acetate	NELAP	5.0		ND	µg/L	1	09/04/2019 15:21	156975
Vinyl chloride	NELAP	2.0		ND	µg/L	1	09/04/2019 15:21	156975
Surr: 1,2-Dichloroethane-d4	*	79.6-118		100.8	%REC	1	09/04/2019 15:21	156975
Surr: 4-Bromofluorobenzene	*	83.9-115		101.0	%REC	1	09/04/2019 15:21	156975
Surr: Dibromofluoromethane	*	84.9-113		98.3	%REC	1	09/04/2019 15:21	156975
Surr: Toluene-d8	*	86.7-112		100.4	%REC	1	09/04/2019 15:21	156975

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19082091-005

Client Sample ID: MW-C9

Matrix: GROUNDWATER

Collection Date: 08/29/2019 11:25

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 353.2 R2.0 (TOTAL)								
Nitrogen, Nitrate (as N)	NELAP	0.500		3.13	mg/L	10	09/04/2019 17:29	R266550
EPA 600 375.2 REV 2.0 1993 (TOTAL)								
Sulfate	NELAP	50		136	mg/L	5	09/05/2019 18:58	R266501
SM-3500-FE D, LABORATORY ANALYZED								
Lab Ferrous Iron	*	0.020		0.043	mg/L	1	09/10/2019 12:17	R266668
STANDARD METHODS 4500-CL E (TOTAL) 1997								
Chloride	NELAP	20		48	mg/L	5	09/05/2019 18:58	R266526
STANDARD METHODS 4500-CO2 C, LABORATORY ANALYZED								
Lab Free Carbon Dioxide as CO2	*	0		14.5	mg/L	1	09/03/2019 15:24	R266464
STANDARD METHODS 5310 C, ORGANIC CARBON								
Dissolved Organic Carbon	NELAP	1.0		1.0	mg/L	1	09/03/2019 19:01	R266410
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		ND	µg/L	1	09/04/2019 9:40	R266452
Ethene	*	10.0		ND	µg/L	1	09/04/2019 9:40	R266452
Methane	*	4.0		ND	µg/L	1	09/04/2019 9:40	R266452
SW-846 3510C,8270C, SEMI-VOLATILE ORGANIC COMPOUNDS								
1,4-Dioxane	*	0.00100		ND	mg/L	1	09/05/2019 2:14	156900
Surr: 2-Fluorobiphenyl	*	21.4-142		54.1	%REC	1	09/05/2019 2:14	156900
Surr: Nitrobenzene-d5	*	15-163		54.5	%REC	1	09/05/2019 2:14	156900
Surr: p-Terphenyl-d14	*	10-173		75.2	%REC	1	09/05/2019 2:14	156900
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
1,1,1-Trichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
1,1,2,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
1,1,2-Trichloro-1,2,2-trifluoroethane	*	5.0		ND	µg/L	1	09/04/2019 15:48	156975
1,1,2-Trichloroethane	NELAP	0.5		ND	µg/L	1	09/04/2019 15:48	156975
1,1-Dichloro-2-propanone	*	30.0		ND	µg/L	1	09/04/2019 15:48	156975
1,1-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
1,1-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
1,1-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
1,2,3-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
1,2,3-Trichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
1,2,3-Trimethylbenzene	*	2.0		ND	µg/L	1	09/04/2019 15:48	156975
1,2,4-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
1,2,4-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
1,2-Dibromo-3-chloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
1,2-Dibromoethane	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
1,2-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
1,2-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
1,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
1,3,5-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
1,3-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
1,3-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
1,4-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
1-Chlorobutane	NELAP	5.0		ND	µg/L	1	09/04/2019 15:48	156975
2,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19082091-005

Client Sample ID: MW-C9

Matrix: GROUNDWATER

Collection Date: 08/29/2019 11:25

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
2-Butanone	NELAP	10.0		ND	µg/L	1	09/04/2019 15:48	156975
2-Chloroethyl vinyl ether	NELAP	5.0		ND	µg/L	1	09/04/2019 15:48	156975
2-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
2-Hexanone	NELAP	10.0		ND	µg/L	1	09/04/2019 15:48	156975
2-Nitropropane	NELAP	10.0		ND	µg/L	1	09/04/2019 15:48	156975
4-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
4-Methyl-2-pentanone	NELAP	10.0		ND	µg/L	1	09/04/2019 15:48	156975
Acetone	NELAP	10	J	6.4	µg/L	1	09/04/2019 15:48	156975
Acetonitrile	NELAP	10.0		ND	µg/L	1	09/04/2019 15:48	156975
Acrolein	NELAP	20.0		ND	µg/L	1	09/04/2019 15:48	156975
Acrylonitrile	NELAP	5.0		ND	µg/L	1	09/04/2019 15:48	156975
Allyl chloride	NELAP	5.0		ND	µg/L	1	09/04/2019 15:48	156975
Benzene	NELAP	0.5		ND	µg/L	1	09/04/2019 15:48	156975
Bromobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
Bromoform	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
Bromomethane	NELAP	5.0		ND	µg/L	1	09/04/2019 15:48	156975
Carbon disulfide	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
Carbon tetrachloride	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
Chlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
Chloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
Chloroform	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
Chloromethane	NELAP	5.0		ND	µg/L	1	09/04/2019 15:48	156975
Chloroprene	NELAP	5.0		ND	µg/L	1	09/04/2019 15:48	156975
cis-1,2-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
cis-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
cis-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
Cyclohexanone	*	20.0		ND	µg/L	1	09/04/2019 15:48	156975
Dibromochloromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
Dibromomethane	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
Dichlorodifluoromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
Ethyl acetate	NELAP	10.0		ND	µg/L	1	09/04/2019 15:48	156975
Ethyl ether	NELAP	5.0		ND	µg/L	1	09/04/2019 15:48	156975
Ethyl methacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 15:48	156975
Ethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
Hexachlorobutadiene	NELAP	5.0		ND	µg/L	1	09/04/2019 15:48	156975
Hexachloroethane	NELAP	5.0		ND	µg/L	1	09/04/2019 15:48	156975
Iodomethane	NELAP	5.0		ND	µg/L	1	09/04/2019 15:48	156975
Isopropylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
m,p-Xylenes	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
Methacrylonitrile	NELAP	5.0		ND	µg/L	1	09/04/2019 15:48	156975
Methyl Methacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 15:48	156975
Methyl tert-butyl ether	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
Methylacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 15:48	156975
Methylene chloride	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
Naphthalene	NELAP	5.0		ND	µg/L	1	09/04/2019 15:48	156975

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19082091-005

Client Sample ID: MW-C9

Matrix: GROUNDWATER

Collection Date: 08/29/2019 11:25

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
n-Butyl acetate	*	2.0		ND	µg/L	1	09/04/2019 15:48	156975
n-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
n-Heptane	*	5.0		ND	µg/L	1	09/04/2019 15:48	156975
n-Hexane	*	5.0		ND	µg/L	1	09/04/2019 15:48	156975
Nitrobenzene	NELAP	50.0		ND	µg/L	1	09/04/2019 15:48	156975
n-Propylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
o-Xylene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
Pentachloroethane	NELAP	5.0		ND	µg/L	1	09/04/2019 15:48	156975
p-Isopropyltoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
Propionitrile	NELAP	10.0		ND	µg/L	1	09/04/2019 15:48	156975
sec-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
Styrene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
tert-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
Tetrachloroethylene	NELAP	0.5		ND	µg/L	1	09/04/2019 15:48	156975
Tetrahydrofuran	NELAP	5.0		ND	µg/L	1	09/04/2019 15:48	156975
Toluene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
trans-1,2-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
trans-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
trans-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
Trichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
Trichlorofluoromethane	NELAP	5.0		ND	µg/L	1	09/04/2019 15:48	156975
Vinyl acetate	NELAP	5.0		ND	µg/L	1	09/04/2019 15:48	156975
Vinyl chloride	NELAP	2.0		ND	µg/L	1	09/04/2019 15:48	156975
Surr: 1,2-Dichloroethane-d4	*	79.6-118		102.5	%REC	1	09/04/2019 15:48	156975
Surr: 4-Bromofluorobenzene	*	83.9-115		100.1	%REC	1	09/04/2019 15:48	156975
Surr: Dibromofluoromethane	*	84.9-113		98.6	%REC	1	09/04/2019 15:48	156975
Surr: Toluene-d8	*	86.7-112		100.0	%REC	1	09/04/2019 15:48	156975

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19082091-006

Client Sample ID: MW-C10

Matrix: GROUNDWATER

Collection Date: 08/29/2019 12:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 353.2 R2.0 (TOTAL)								
Nitrogen, Nitrate (as N)	NELAP	0.050	J	0.021	mg/L	1	09/09/2019 17:02	R266637
EPA 600 375.2 REV 2.0 1993 (TOTAL)								
Sulfate	NELAP	50		134	mg/L	5	09/09/2019 13:02	R266614
SM-3500-FE D, LABORATORY ANALYZED								
Lab Ferrous Iron	*	0.40		10	mg/L	20	09/10/2019 12:18	R266668
STANDARD METHODS 4500-CL E (TOTAL) 1997								
Chloride	NELAP	4		25	mg/L	1	09/05/2019 19:03	R266526
STANDARD METHODS 4500-CO2 C, LABORATORY ANALYZED								
Lab Free Carbon Dioxide as CO2	*	0		20.3	mg/L	1	09/03/2019 15:24	R266464
STANDARD METHODS 5310 C, ORGANIC CARBON								
Dissolved Organic Carbon	NELAP	1.0	J	1.0	mg/L	1	09/03/2019 19:08	R266410
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		ND	µg/L	1	09/04/2019 9:52	R266452
Ethene	*	10.0		ND	µg/L	1	09/04/2019 9:52	R266452
Methane	*	4.0		4.1	µg/L	1	09/04/2019 9:52	R266452
SW-846 3510C,8270C, SEMI-VOLATILE ORGANIC COMPOUNDS								
1,4-Dioxane	*	0.00100		ND	mg/L	1	09/05/2019 2:53	156900
Surr: 2-Fluorobiphenyl	*	21.4-142		44.2	%REC	1	09/05/2019 2:53	156900
Surr: Nitrobenzene-d5	*	15-163		46.9	%REC	1	09/05/2019 2:53	156900
Surr: p-Terphenyl-d14	*	10-173		67.8	%REC	1	09/05/2019 2:53	156900
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
1,1,1-Trichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
1,1,2,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
1,1,2-Trichloro-1,2,2-trifluoroethane	*	5.0		ND	µg/L	1	09/04/2019 16:45	156975
1,1,2-Trichloroethane	NELAP	0.5		ND	µg/L	1	09/04/2019 16:45	156975
1,1-Dichloro-2-propanone	*	30.0		ND	µg/L	1	09/04/2019 16:45	156975
1,1-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
1,1-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
1,1-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
1,2,3-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
1,2,3-Trichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
1,2,3-Trimethylbenzene	*	2.0		ND	µg/L	1	09/04/2019 16:45	156975
1,2,4-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
1,2,4-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
1,2-Dibromo-3-chloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
1,2-Dibromoethane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
1,2-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
1,2-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
1,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
1,3,5-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
1,3-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
1,3-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
1,4-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
1-Chlorobutane	NELAP	5.0		ND	µg/L	1	09/04/2019 16:45	156975
2,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19082091-006

Client Sample ID: MW-C10

Matrix: GROUNDWATER

Collection Date: 08/29/2019 12:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
2-Butanone	NELAP	10.0		ND	µg/L	1	09/04/2019 16:45	156975
2-Chloroethyl vinyl ether	NELAP	5.0		ND	µg/L	1	09/04/2019 16:45	156975
2-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
2-Hexanone	NELAP	10.0		ND	µg/L	1	09/04/2019 16:45	156975
2-Nitropropane	NELAP	10.0		ND	µg/L	1	09/04/2019 16:45	156975
4-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
4-Methyl-2-pentanone	NELAP	10.0		ND	µg/L	1	09/04/2019 16:45	156975
Acetone	NELAP	10	J	6.6	µg/L	1	09/04/2019 16:45	156975
Acetonitrile	NELAP	10.0		ND	µg/L	1	09/04/2019 16:45	156975
Acrolein	NELAP	20.0		ND	µg/L	1	09/04/2019 16:45	156975
Acrylonitrile	NELAP	5.0		ND	µg/L	1	09/04/2019 16:45	156975
Allyl chloride	NELAP	5.0		ND	µg/L	1	09/04/2019 16:45	156975
Benzene	NELAP	0.5		ND	µg/L	1	09/04/2019 16:45	156975
Bromobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
Bromoform	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
Bromomethane	NELAP	5.0		ND	µg/L	1	09/04/2019 16:45	156975
Carbon disulfide	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
Carbon tetrachloride	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
Chlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
Chloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
Chloroform	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
Chloromethane	NELAP	5.0		ND	µg/L	1	09/04/2019 16:45	156975
Chloroprene	NELAP	5.0		ND	µg/L	1	09/04/2019 16:45	156975
cis-1,2-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
cis-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
cis-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
Cyclohexanone	*	20.0		ND	µg/L	1	09/04/2019 16:45	156975
Dibromochloromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
Dibromomethane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
Dichlorodifluoromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
Ethyl acetate	NELAP	10.0		ND	µg/L	1	09/04/2019 16:45	156975
Ethyl ether	NELAP	5.0		ND	µg/L	1	09/04/2019 16:45	156975
Ethyl methacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 16:45	156975
Ethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
Hexachlorobutadiene	NELAP	5.0		ND	µg/L	1	09/04/2019 16:45	156975
Hexachloroethane	NELAP	5.0		18.5	µg/L	1	09/04/2019 16:45	156975
Iodomethane	NELAP	5.0		ND	µg/L	1	09/04/2019 16:45	156975
Isopropylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
m,p-Xylenes	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
Methacrylonitrile	NELAP	5.0		ND	µg/L	1	09/04/2019 16:45	156975
Methyl Methacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 16:45	156975
Methyl tert-butyl ether	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
Methylacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 16:45	156975
Methylene chloride	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
Naphthalene	NELAP	5.0		ND	µg/L	1	09/04/2019 16:45	156975

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19082091-006

Client Sample ID: MW-C10

Matrix: GROUNDWATER

Collection Date: 08/29/2019 12:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
n-Butyl acetate	*	2.0		ND	µg/L	1	09/04/2019 16:45	156975
n-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
n-Heptane	*	5.0		ND	µg/L	1	09/04/2019 16:45	156975
n-Hexane	*	5.0		ND	µg/L	1	09/04/2019 16:45	156975
Nitrobenzene	NELAP	50.0		ND	µg/L	1	09/04/2019 16:45	156975
n-Propylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
o-Xylene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
Pentachloroethane	NELAP	5.0		ND	µg/L	1	09/04/2019 16:45	156975
p-Isopropyltoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
Propionitrile	NELAP	10.0		ND	µg/L	1	09/04/2019 16:45	156975
sec-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
Styrene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
tert-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
Tetrachloroethylene	NELAP	0.5		ND	µg/L	1	09/04/2019 16:45	156975
Tetrahydrofuran	NELAP	5.0		ND	µg/L	1	09/04/2019 16:45	156975
Toluene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
trans-1,2-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
trans-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
trans-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
Trichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
Trichlorofluoromethane	NELAP	5.0		ND	µg/L	1	09/04/2019 16:45	156975
Vinyl acetate	NELAP	5.0		ND	µg/L	1	09/04/2019 16:45	156975
Vinyl chloride	NELAP	2.0		ND	µg/L	1	09/04/2019 16:45	156975
Surr: 1,2-Dichloroethane-d4	*	79.6-118		101.7	%REC	1	09/04/2019 16:45	156975
Surr: 4-Bromofluorobenzene	*	83.9-115		99.8	%REC	1	09/04/2019 16:45	156975
Surr: Dibromofluoromethane	*	84.9-113		99.1	%REC	1	09/04/2019 16:45	156975
Surr: Toluene-d8	*	86.7-112		100.6	%REC	1	09/04/2019 16:45	156975

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19082091-007

Client Sample ID: MW-C12

Matrix: GROUNDWATER

Collection Date: 08/29/2019 14:22

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 353.2 R2.0 (TOTAL)								
Nitrogen, Nitrate (as N)	NELAP	0.050	J	0.013	mg/L	1	09/04/2019 17:42	R266550
EPA 600 375.2 REV 2.0 1993 (TOTAL)								
Sulfate	NELAP	50		109	mg/L	5	09/05/2019 19:22	R266501
SM-3500-FE D, LABORATORY ANALYZED								
Lab Ferrous Iron	*	0.40		11	mg/L	20	09/10/2019 12:20	R266668
STANDARD METHODS 4500-CL E (TOTAL) 1997								
Chloride	NELAP	20		134	mg/L	5	09/05/2019 19:22	R266526
STANDARD METHODS 4500-CO2 C, LABORATORY ANALYZED								
Lab Free Carbon Dioxide as CO2	*	0		27.6	mg/L	1	09/03/2019 15:24	R266464
STANDARD METHODS 5310 C, ORGANIC CARBON								
Dissolved Organic Carbon	NELAP	1.0	J	0.8	mg/L	1	09/03/2019 19:46	R266410
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		ND	µg/L	1	09/04/2019 10:05	R266452
Ethene	*	10.0		ND	µg/L	1	09/04/2019 10:05	R266452
Methane	*	4.0		6.7	µg/L	1	09/04/2019 10:05	R266452
SW-846 3510C,8270C, SEMI-VOLATILE ORGANIC COMPOUNDS								
1,4-Dioxane	*	0.00100		ND	mg/L	1	09/05/2019 3:31	156900
Surr: 2-Fluorobiphenyl	*	21.4-142		72.4	%REC	1	09/05/2019 3:31	156900
Surr: Nitrobenzene-d5	*	15-163		64.0	%REC	1	09/05/2019 3:31	156900
Surr: p-Terphenyl-d14	*	10-173		86.6	%REC	1	09/05/2019 3:31	156900
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
1,1,1-Trichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
1,1,2,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
1,1,2-Trichloro-1,2,2-trifluoroethane	*	5.0		ND	µg/L	1	09/04/2019 17:12	156975
1,1,2-Trichloroethane	NELAP	0.5		ND	µg/L	1	09/04/2019 17:12	156975
1,1-Dichloro-2-propanone	*	30.0		ND	µg/L	1	09/04/2019 17:12	156975
1,1-Dichloroethane	NELAP	2.0	J	0.8	µg/L	1	09/04/2019 17:12	156975
1,1-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
1,1-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
1,2,3-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
1,2,3-Trichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
1,2,3-Trimethylbenzene	*	2.0		ND	µg/L	1	09/04/2019 17:12	156975
1,2,4-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
1,2,4-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
1,2-Dibromo-3-chloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
1,2-Dibromoethane	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
1,2-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
1,2-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
1,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
1,3,5-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
1,3-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
1,3-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
1,4-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
1-Chlorobutane	NELAP	5.0		ND	µg/L	1	09/04/2019 17:12	156975
2,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19082091-007

Client Sample ID: MW-C12

Matrix: GROUNDWATER

Collection Date: 08/29/2019 14:22

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
2-Butanone	NELAP	10.0		ND	µg/L	1	09/04/2019 17:12	156975
2-Chloroethyl vinyl ether	NELAP	5.0		ND	µg/L	1	09/04/2019 17:12	156975
2-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
2-Hexanone	NELAP	10.0		ND	µg/L	1	09/04/2019 17:12	156975
2-Nitropropane	NELAP	10.0		ND	µg/L	1	09/04/2019 17:12	156975
4-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
4-Methyl-2-pentanone	NELAP	10.0		ND	µg/L	1	09/04/2019 17:12	156975
Acetone	NELAP	10	J	6.8	µg/L	1	09/04/2019 17:12	156975
Acetonitrile	NELAP	10.0		ND	µg/L	1	09/04/2019 17:12	156975
Acrolein	NELAP	20.0		ND	µg/L	1	09/04/2019 17:12	156975
Acrylonitrile	NELAP	5.0		ND	µg/L	1	09/04/2019 17:12	156975
Allyl chloride	NELAP	5.0		ND	µg/L	1	09/04/2019 17:12	156975
Benzene	NELAP	0.5		2.8	µg/L	1	09/04/2019 17:12	156975
Bromobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
Bromoform	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
Bromomethane	NELAP	5.0		ND	µg/L	1	09/04/2019 17:12	156975
Carbon disulfide	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
Carbon tetrachloride	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
Chlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
Chloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
Chloroform	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
Chloromethane	NELAP	5.0		ND	µg/L	1	09/04/2019 17:12	156975
Chloroprene	NELAP	5.0		ND	µg/L	1	09/04/2019 17:12	156975
cis-1,2-Dichloroethene	NELAP	2.0		16.5	µg/L	1	09/04/2019 17:12	156975
cis-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
cis-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
Cyclohexanone	*	20.0		ND	µg/L	1	09/04/2019 17:12	156975
Dibromochloromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
Dibromomethane	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
Dichlorodifluoromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
Ethyl acetate	NELAP	10.0		ND	µg/L	1	09/04/2019 17:12	156975
Ethyl ether	NELAP	5.0		ND	µg/L	1	09/04/2019 17:12	156975
Ethyl methacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 17:12	156975
Ethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
Hexachlorobutadiene	NELAP	5.0		ND	µg/L	1	09/04/2019 17:12	156975
Hexachloroethane	NELAP	5.0		ND	µg/L	1	09/04/2019 17:12	156975
Iodomethane	NELAP	5.0		ND	µg/L	1	09/04/2019 17:12	156975
Isopropylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
m,p-Xylenes	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
Methacrylonitrile	NELAP	5.0		ND	µg/L	1	09/04/2019 17:12	156975
Methyl Methacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 17:12	156975
Methyl tert-butyl ether	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
Methylacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 17:12	156975
Methylene chloride	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
Naphthalene	NELAP	5.0		ND	µg/L	1	09/04/2019 17:12	156975

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19082091-007

Client Sample ID: MW-C12

Matrix: GROUNDWATER

Collection Date: 08/29/2019 14:22

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
n-Butyl acetate	*	2.0		ND	µg/L	1	09/04/2019 17:12	156975
n-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
n-Heptane	*	5.0		ND	µg/L	1	09/04/2019 17:12	156975
n-Hexane	*	5.0		ND	µg/L	1	09/04/2019 17:12	156975
Nitrobenzene	NELAP	50.0		ND	µg/L	1	09/04/2019 17:12	156975
n-Propylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
o-Xylene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
Pentachloroethane	NELAP	5.0		ND	µg/L	1	09/04/2019 17:12	156975
p-Isopropyltoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
Propionitrile	NELAP	10.0		ND	µg/L	1	09/04/2019 17:12	156975
sec-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
Styrene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
tert-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
Tetrachloroethylene	NELAP	0.5		ND	µg/L	1	09/04/2019 17:12	156975
Tetrahydrofuran	NELAP	5.0		ND	µg/L	1	09/04/2019 17:12	156975
Toluene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
trans-1,2-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
trans-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
trans-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
Trichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:12	156975
Trichlorofluoromethane	NELAP	5.0		ND	µg/L	1	09/04/2019 17:12	156975
Vinyl acetate	NELAP	5.0		ND	µg/L	1	09/04/2019 17:12	156975
Vinyl chloride	NELAP	2.0	J	1.3	µg/L	1	09/04/2019 17:12	156975
Surr: 1,2-Dichloroethane-d4	*	79.6-118		101.0	%REC	1	09/04/2019 17:12	156975
Surr: 4-Bromofluorobenzene	*	83.9-115		101.5	%REC	1	09/04/2019 17:12	156975
Surr: Dibromofluoromethane	*	84.9-113		99.1	%REC	1	09/04/2019 17:12	156975
Surr: Toluene-d8	*	86.7-112		99.9	%REC	1	09/04/2019 17:12	156975

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19082091-008

Client Sample ID: MW-C13

Matrix: GROUNDWATER

Collection Date: 08/29/2019 14:52

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 353.2 R2.0 (TOTAL)								
Nitrogen, Nitrate (as N)	NELAP	0.050		0.061	mg/L	1	09/04/2019 17:44	R266550
EPA 600 375.2 REV 2.0 1993 (TOTAL)								
Sulfate	NELAP	20	S	40	mg/L	2	09/05/2019 19:24	R266501
<i>Matrix spike did not recover within control limits. Result verified by re-analysis at dilution.</i>								
SM-3500-FE D, LABORATORY ANALYZED								
Lab Ferrous Iron	*	0.40		9.7	mg/L	20	09/10/2019 12:21	R266668
STANDARD METHODS 4500-CL E (TOTAL) 1997								
Chloride	NELAP	20		77	mg/L	5	09/05/2019 19:35	R266526
STANDARD METHODS 4500-CO2 C, LABORATORY ANALYZED								
Lab Free Carbon Dioxide as CO2	*	0		38.2	mg/L	1	09/03/2019 15:24	R266464
STANDARD METHODS 5310 C, ORGANIC CARBON								
Dissolved Organic Carbon	NELAP	1.0		3.8	mg/L	1	09/03/2019 19:52	R266410
PERMANENT GASES (RSKSOP-175)								
Ethane	*	350		427	µg/L	50	09/04/2019 10:53	R266452
Ethene	*	10.0		ND	µg/L	1	09/04/2019 10:23	R266452
Methane	*	200		1020	µg/L	50	09/04/2019 10:53	R266452
SW-846 3510C,8270C, SEMI-VOLATILE ORGANIC COMPOUNDS								
1,4-Dioxane	*	0.00200		0.00842	mg/L	2	09/06/2019 14:15	156900
Surr: 2-Fluorobiphenyl	*	21.4-142		73.8	%REC	1	09/05/2019 4:10	156900
Surr: Nitrobenzene-d5	*	15-163		76.5	%REC	1	09/05/2019 4:10	156900
Surr: p-Terphenyl-d14	*	10-173		76.8	%REC	1	09/05/2019 4:10	156900
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
1,1,1-Trichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
1,1,2,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
1,1,2-Trichloro-1,2,2-trifluoroethane	*	5.0		ND	µg/L	1	09/04/2019 17:38	156975
1,1,2-Trichloroethane	NELAP	0.5		ND	µg/L	1	09/04/2019 17:38	156975
1,1-Dichloro-2-propanone	*	30.0		ND	µg/L	1	09/04/2019 17:38	156975
1,1-Dichloroethane	NELAP	2.0		3.2	µg/L	1	09/04/2019 17:38	156975
1,1-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
1,1-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
1,2,3-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
1,2,3-Trichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
1,2,3-Trimethylbenzene	*	2.0		ND	µg/L	1	09/04/2019 17:38	156975
1,2,4-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
1,2,4-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
1,2-Dibromo-3-chloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
1,2-Dibromoethane	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
1,2-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
1,2-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
1,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
1,3,5-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
1,3-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
1,3-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
1,4-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
1-Chlorobutane	NELAP	5.0		ND	µg/L	1	09/04/2019 17:38	156975

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19082091-008

Client Sample ID: MW-C13

Matrix: GROUNDWATER

Collection Date: 08/29/2019 14:52

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
2,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
2-Butanone	NELAP	10.0		ND	µg/L	1	09/04/2019 17:38	156975
2-Chloroethyl vinyl ether	NELAP	5.0		ND	µg/L	1	09/04/2019 17:38	156975
2-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
2-Hexanone	NELAP	10.0		ND	µg/L	1	09/04/2019 17:38	156975
2-Nitropropane	NELAP	10.0		ND	µg/L	1	09/04/2019 17:38	156975
4-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
4-Methyl-2-pentanone	NELAP	10.0		ND	µg/L	1	09/04/2019 17:38	156975
Acetone	NELAP	10	J	6.9	µg/L	1	09/04/2019 17:38	156975
Acetonitrile	NELAP	10.0		ND	µg/L	1	09/04/2019 17:38	156975
Acrolein	NELAP	20.0		ND	µg/L	1	09/04/2019 17:38	156975
Acrylonitrile	NELAP	5.0		ND	µg/L	1	09/04/2019 17:38	156975
Allyl chloride	NELAP	5.0		ND	µg/L	1	09/04/2019 17:38	156975
Benzene	NELAP	0.5		15.2	µg/L	1	09/04/2019 17:38	156975
Bromobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
Bromochloromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
Bromodichloromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
Bromoform	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
Bromomethane	NELAP	5.0		ND	µg/L	1	09/04/2019 17:38	156975
Carbon disulfide	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
Carbon tetrachloride	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
Chlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
Chloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
Chloroform	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
Chloromethane	NELAP	5.0		ND	µg/L	1	09/04/2019 17:38	156975
Chloroprene	NELAP	5.0		ND	µg/L	1	09/04/2019 17:38	156975
cis-1,2-Dichloroethene	NELAP	2.0		16.6	µg/L	1	09/04/2019 17:38	156975
cis-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
cis-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
Cyclohexanone	*	20.0		ND	µg/L	1	09/04/2019 17:38	156975
Dibromochloromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
Dibromomethane	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
Dichlorodifluoromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
Ethyl acetate	NELAP	10.0		ND	µg/L	1	09/04/2019 17:38	156975
Ethyl ether	NELAP	5.0		ND	µg/L	1	09/04/2019 17:38	156975
Ethyl methacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 17:38	156975
Ethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
Hexachlorobutadiene	NELAP	5.0		ND	µg/L	1	09/04/2019 17:38	156975
Hexachloroethane	NELAP	5.0		ND	µg/L	1	09/04/2019 17:38	156975
Iodomethane	NELAP	5.0		ND	µg/L	1	09/04/2019 17:38	156975
Isopropylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
m,p-Xylenes	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
Methacrylonitrile	NELAP	5.0		ND	µg/L	1	09/04/2019 17:38	156975
Methyl Methacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 17:38	156975
Methyl tert-butyl ether	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
Methylacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 17:38	156975
Methylene chloride	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19082091-008

Client Sample ID: MW-C13

Matrix: GROUNDWATER

Collection Date: 08/29/2019 14:52

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
Naphthalene	NELAP	5.0		ND	µg/L	1	09/04/2019 17:38	156975
n-Butyl acetate	*	2.0		ND	µg/L	1	09/04/2019 17:38	156975
n-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
n-Heptane	*	5.0		ND	µg/L	1	09/04/2019 17:38	156975
n-Hexane	*	5.0		ND	µg/L	1	09/04/2019 17:38	156975
Nitrobenzene	NELAP	50.0		ND	µg/L	1	09/04/2019 17:38	156975
n-Propylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
o-Xylene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
Pentachloroethane	NELAP	5.0		ND	µg/L	1	09/04/2019 17:38	156975
p-Isopropyltoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
Propionitrile	NELAP	10.0		ND	µg/L	1	09/04/2019 17:38	156975
sec-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
Styrene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
tert-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
Tetrachloroethene	NELAP	0.5		ND	µg/L	1	09/04/2019 17:38	156975
Tetrahydrofuran	NELAP	5.0		ND	µg/L	1	09/04/2019 17:38	156975
Toluene	NELAP	20.0		183	µg/L	10	09/05/2019 11:45	156991
trans-1,2-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
trans-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
trans-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
Trichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 17:38	156975
Trichlorofluoromethane	NELAP	5.0		ND	µg/L	1	09/04/2019 17:38	156975
Vinyl acetate	NELAP	5.0		ND	µg/L	1	09/04/2019 17:38	156975
Vinyl chloride	NELAP	2.0		18.9	µg/L	1	09/04/2019 17:38	156975
Surr: 1,2-Dichloroethane-d4	*	79.6-118		101.2	%REC	1	09/04/2019 17:38	156975
Surr: 4-Bromofluorobenzene	*	83.9-115		99.5	%REC	1	09/04/2019 17:38	156975
Surr: Dibromofluoromethane	*	84.9-113		98.7	%REC	1	09/04/2019 17:38	156975
Surr: Toluene-d8	*	86.7-112		100.6	%REC	1	09/04/2019 17:38	156975

Sample Summary

<http://www.teklabinc.com/>**Client:** Geotechnology, Inc.**Work Order:** 19082091**Client Project:** Hayford Bridge J006295.07**Report Date:** 10-Sep-2019

Lab Sample ID	Client Sample ID	Matrix	Fractions	Collection Date
19082091-001	EFF	Groundwater	2	08/29/2019 8:50
19082091-002	W-8	Groundwater	2	08/29/2019 9:10
19082091-003	W-10	Groundwater	2	08/29/2019 9:25
19082091-004	W-9	Groundwater	2	08/29/2019 9:40
19082091-005	MW-C9	Groundwater	7	08/29/2019 11:25
19082091-006	MW-C10	Groundwater	7	08/29/2019 12:30
19082091-007	MW-C12	Groundwater	7	08/29/2019 14:22
19082091-008	MW-C13	Groundwater	7	08/29/2019 14:52



Dates Report

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Sample ID	Client Sample ID	Collection Date	Received Date	
			Prep Date/Time	Analysis Date/Time
19082091-001A	EFF	08/29/2019 8:50	08/30/2019 15:50	
	SW-846 3510C,8270C, Semi-Volatile Organic Compounds		09/03/2019 13:31	09/04/2019 21:46
19082091-001B	EFF	08/29/2019 8:50	08/30/2019 15:50	
	SW-846 5030, 8260B, Volatile Organic Compounds by GC/MS			09/04/2019 14:01
19082091-002A	W-8	08/29/2019 9:10	08/30/2019 15:50	
	SW-846 3510C,8270C, Semi-Volatile Organic Compounds		09/03/2019 13:31	09/04/2019 22:25
19082091-002B	W-8	08/29/2019 9:10	08/30/2019 15:50	
	SW-846 5030, 8260B, Volatile Organic Compounds by GC/MS			09/04/2019 14:28
19082091-003A	W-10	08/29/2019 9:25	08/30/2019 15:50	
	SW-846 3510C,8270C, Semi-Volatile Organic Compounds		09/03/2019 13:31	09/04/2019 23:03
19082091-003B	W-10	08/29/2019 9:25	08/30/2019 15:50	
	SW-846 5030, 8260B, Volatile Organic Compounds by GC/MS			09/04/2019 14:54
19082091-004A	W-9	08/29/2019 9:40	08/30/2019 15:50	
	SW-846 3510C,8270C, Semi-Volatile Organic Compounds		09/03/2019 13:31	09/05/2019 1:36
19082091-004B	W-9	08/29/2019 9:40	08/30/2019 15:50	
	SW-846 5030, 8260B, Volatile Organic Compounds by GC/MS			09/04/2019 15:21
19082091-005A	MW-C9	08/29/2019 11:25	08/30/2019 15:50	
	SW-846 3510C,8270C, Semi-Volatile Organic Compounds		09/03/2019 13:31	09/05/2019 2:14
19082091-005B	MW-C9	08/29/2019 11:25	08/30/2019 15:50	
	EPA 600 375.2 Rev 2.0 1993 (Total)			09/05/2019 18:58
	Standard Method 4500-H B 2000, Laboratory Analyzed			09/03/2019 9:34
	Standard Methods 4500-Cl E (Total) 1997			09/05/2019 18:58
	Standard Methods 4500-CO2 C, Laboratory Analyzed			09/03/2019 15:24
	Standard Methods 4500-NO2 B (Total) 2000			08/30/2019 18:38
19082091-005C	MW-C9	08/29/2019 11:25	08/30/2019 15:50	
	EPA 600 353.2 R2.0 (Total)			09/04/2019 17:29
19082091-005D	MW-C9	08/29/2019 11:25	08/30/2019 15:50	
	Standard Methods 5310 C, Organic Carbon			09/03/2019 19:01
19082091-005E	MW-C9	08/29/2019 11:25	08/30/2019 15:50	
	SM-3500-Fe D, Laboratory Analyzed			09/10/2019 12:17
19082091-005F	MW-C9	08/29/2019 11:25	08/30/2019 15:50	
	Permanent Gases (RSKSOP-175)			09/04/2019 9:40
19082091-005G	MW-C9	08/29/2019 11:25	08/30/2019 15:50	
	SW-846 5030, 8260B, Volatile Organic Compounds by GC/MS			09/04/2019 15:48
19082091-006A	MW-C10	08/29/2019 12:30	08/30/2019 15:50	

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Sample ID	Client Sample ID	Collection Date	Received Date	Prep Date/Time	Analysis Date/Time
	Test Name				
	SW-846 3510C,8270C, Semi-Volatile Organic Compounds			09/03/2019 13:31	09/05/2019 2:53
19082091-006B	MW-C10	08/29/2019 12:30	08/30/2019 15:50		
	EPA 600 375.2 Rev 2.0 1993 (Total)			09/09/2019 13:02	
	Standard Method 4500-H B 2000, Laboratory Analyzed			09/03/2019 9:34	
	Standard Methods 4500-Cl E (Total) 1997			09/05/2019 19:03	
	Standard Methods 4500-CO2 C, Laboratory Analyzed			09/03/2019 15:24	
	Standard Methods 4500-NO2 B (Total) 2000			08/30/2019 18:39	
19082091-006C	MW-C10	08/29/2019 12:30	08/30/2019 15:50		
	EPA 600 353.2 R2.0 (Total)			09/09/2019 17:02	
19082091-006D	MW-C10	08/29/2019 12:30	08/30/2019 15:50		
	Standard Methods 5310 C, Organic Carbon			09/03/2019 19:08	
19082091-006E	MW-C10	08/29/2019 12:30	08/30/2019 15:50		
	SM-3500-Fe D, Laboratory Analyzed			09/10/2019 12:18	
19082091-006F	MW-C10	08/29/2019 12:30	08/30/2019 15:50		
	Permanent Gases (RSKSOP-175)			09/04/2019 9:52	
19082091-006G	MW-C10	08/29/2019 12:30	08/30/2019 15:50		
	SW-846 5030, 8260B, Volatile Organic Compounds by GC/MS			09/04/2019 16:45	
19082091-007A	MW-C12	08/29/2019 14:22	08/30/2019 15:50		
	SW-846 3510C,8270C, Semi-Volatile Organic Compounds			09/03/2019 13:31	09/05/2019 3:31
19082091-007B	MW-C12	08/29/2019 14:22	08/30/2019 15:50		
	EPA 600 375.2 Rev 2.0 1993 (Total)			09/05/2019 19:22	
	Standard Method 4500-H B 2000, Laboratory Analyzed			09/03/2019 9:34	
	Standard Methods 4500-Cl E (Total) 1997			09/05/2019 19:22	
	Standard Methods 4500-CO2 C, Laboratory Analyzed			09/03/2019 15:24	
	Standard Methods 4500-NO2 B (Total) 2000			08/30/2019 18:39	
19082091-007C	MW-C12	08/29/2019 14:22	08/30/2019 15:50		
	EPA 600 353.2 R2.0 (Total)			09/04/2019 17:42	
19082091-007D	MW-C12	08/29/2019 14:22	08/30/2019 15:50		
	Standard Methods 5310 C, Organic Carbon			09/03/2019 19:46	
19082091-007E	MW-C12	08/29/2019 14:22	08/30/2019 15:50		
	SM-3500-Fe D, Laboratory Analyzed			09/10/2019 12:20	
19082091-007F	MW-C12	08/29/2019 14:22	08/30/2019 15:50		
	Permanent Gases (RSKSOP-175)			09/04/2019 10:05	
19082091-007G	MW-C12	08/29/2019 14:22	08/30/2019 15:50		
	SW-846 5030, 8260B, Volatile Organic Compounds by GC/MS			09/04/2019 17:12	

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Sample ID	Client Sample ID	Collection Date	Received Date	Prep Date/Time	Analysis Date/Time
		Test Name			
19082091-008A	MW-C13	08/29/2019 14:52	08/30/2019 15:50		
	SW-846 3510C,8270C, Semi-Volatile Organic Compounds			09/03/2019 13:31	09/05/2019 4:10
	SW-846 3510C,8270C, Semi-Volatile Organic Compounds			09/03/2019 13:31	09/06/2019 14:15
19082091-008B	MW-C13	08/29/2019 14:52	08/30/2019 15:50		
	EPA 600 375.2 Rev 2.0 1993 (Total)				09/05/2019 19:24
	Standard Method 4500-H B 2000, Laboratory Analyzed				09/03/2019 9:34
	Standard Methods 4500-Cl E (Total) 1997				09/05/2019 19:35
	Standard Methods 4500-CO2 C, Laboratory Analyzed				09/03/2019 15:24
	Standard Methods 4500-NO2 B (Total) 2000				08/30/2019 18:40
19082091-008C	MW-C13	08/29/2019 14:52	08/30/2019 15:50		
	EPA 600 353.2 R2.0 (Total)				09/04/2019 17:44
19082091-008D	MW-C13	08/29/2019 14:52	08/30/2019 15:50		
	Standard Methods 5310 C, Organic Carbon				09/03/2019 19:52
19082091-008E	MW-C13	08/29/2019 14:52	08/30/2019 15:50		
	SM-3500-Fe D, Laboratory Analyzed				09/10/2019 12:21
19082091-008F	MW-C13	08/29/2019 14:52	08/30/2019 15:50		
	Permanent Gases (RSKSOP-175)				09/04/2019 10:23
	Permanent Gases (RSKSOP-175)				09/04/2019 10:53
19082091-008G	MW-C13	08/29/2019 14:52	08/30/2019 15:50		
	SW-846 5030, 8260B, Volatile Organic Compounds by GC/MS				09/04/2019 17:38
	SW-846 5030, 8260B, Volatile Organic Compounds by GC/MS				09/05/2019 11:45

Quality Control Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

EPA 600 353.2 R2.0 (TOTAL)

Batch	R266550	SampType:	MBLK	Units	mg/L							
Analyses				RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Nitrogen, Nitrate-Nitrite (as N)				0.050		< 0.050	0.00900C	0	0	-100	100	09/04/2019

Batch R266550 SampType: LCS

Batch	R266550	SampType:	LCS	Units	mg/L							Date Analyzed
Analyses				RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Nitrogen, Nitrate-Nitrite (as N)				1.00		5.35	5.010	0	106.7	90	110	09/04/2019

Batch R266637 SampType: MBLK

Batch	R266637	SampType:	MBLK	Units	mg/L							Date Analyzed
Analyses				RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Nitrogen, Nitrate-Nitrite (as N)				0.050		< 0.050	0.00900C	0	0	-100	100	09/09/2019

Batch R266637 SampType: LCS

Batch	R266637	SampType:	LCS	Units	mg/L							Date Analyzed
Analyses				RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Nitrogen, Nitrate-Nitrite (as N)				1.00		5.35	5.010	0	106.9	90	110	09/09/2019

Batch R266637 SampType: MS

Batch	R266637	SampType:	MS	Units	mg/L							Date Analyzed
Analyses				RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Nitrogen, Nitrate-Nitrite (as N)				0.050		0.287	0.2500	0.02110	106.2	90	110	09/09/2019

Batch R266637 SampType: MSD

Batch	R266637	SampType:	MSD	Units	mg/L							RPD Limit 10	Date Analyzed
Analyses				RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD		
Nitrogen, Nitrate-Nitrite (as N)				0.050		0.275	0.2500	0.02110	101.7	0.2866	3.99	09/09/2019	

EPA 600 375.2 REV 2.0 1993 (TOTAL)

Batch	R266501	SampType:	MBLK	Units	mg/L							Date Analyzed
Analyses				RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Sulfate				10		< 10	7.620	0	0	-100	100	09/05/2019

Batch R266501 SampType: MBLK

Batch	R266501	SampType:	MBLK	Units	mg/Kg							Date Analyzed
Analyses				RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Sulfate				100		< 100	76.20	0	0	-100	100	09/05/2019

Quality Control Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

EPA 600 375.2 REV 2.0 1993 (TOTAL)

Batch	R266501	SampType:	LCS	Units	mg/L								
SampID:	ICV/LCS												
Analyses		RL	Qual			Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate		10				20	20.00	0	99.7		90	110	09/05/2019

Batch R266501 SampType: LCS

Batch	R266501	SampType:	LCS	Units	mg/Kg								
SampID:	LCS-R266501												
Analyses		RL	Qual			Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate		100				199	200.0	0	99.6		90	110	09/05/2019

Batch R266501 SampType: MS

Batch	R266501	SampType:	MS	Units	mg/L								
SampID:	19082091-008BMS												
Analyses		RL	Qual			Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate		20				60	20.00	40.40	96.0		90	110	09/05/2019

Batch R266501 SampType: MSD

Batch	R266501	SampType:	MSD	Units	mg/L								
SampID:	19082091-008BMSD												
Analyses		RL	Qual			Result	Spike	SPK	Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Sulfate		20	S			58	20.00	40.40	86.8		59.59	3.12	09/05/2019

Batch R266614 SampType: MBLK

Batch	R266614	SampType:	MBLK	Units	mg/L								
SampID:	ICB/MBLK												
Analyses		RL	Qual			Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate		10				< 10	7.620	0	0		-100	100	09/09/2019

Batch R266614 SampType: LCS

Batch	R266614	SampType:	LCS	Units	mg/L								
SampID:	ICV/LCS												
Analyses		RL	Qual			Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate		10				20	20.00	0	101.6		90	110	09/09/2019

SM-3500-FE D, LABORATORY ANALYZED

Batch	R266668	SampType:	MBLK	Units	mg/L								
SampID:	MBLK												
Analyses		RL	Qual			Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lab Ferrous Iron		0.020				< 0.020	0.00800C	0	0		-100	100	09/10/2019

Batch R266668 SampType: LCS

Batch	R266668	SampType:	LCS	Units	mg/L								
SampID:	LCS												
Analyses		RL	Qual			Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lab Ferrous Iron		0.020				0.52	0.5000	0	104.8		90	110	09/10/2019



Quality Control Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SM-3500-FE D, LABORATORY ANALYZED

Batch R266668	SampType: MS	Units mg/L							
SamplID: 19082091-005EMS									
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lab Ferrous Iron	0.020		0.32	0.2500	0.04300	108.8	85	115	09/10/2019

Batch R266668 SampType: MSD

Units mg/L

RPD Limit 15

SamplID: 19082091-005EMSD							
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val %RPD
Lab Ferrous Iron	0.020		0.33	0.2500	0.04300	113.2	0.3150 3.43

STANDARD METHOD 4500-H B 2000, LABORATORY ANALYZED

Batch R266407	SampType: LCS	Units							
SamplID: LCS									
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lab pH	1.00		6.98	7.000	0	99.7	99.1	100.8	09/03/2019

Batch R266407 SampType: DUP

Units

RPD Limit 10

SamplID: 19082091-005BDUP							
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val %RPD
Lab pH	1.00		7.61				7.630 0.26

Batch R266407 SampType: DUP

Units

RPD Limit 10

SamplID: 19082091-006BDUP							
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val %RPD
Lab pH	1.00		7.42				7.440 0.27

Batch R266407 SampType: DUP

Units

RPD Limit 10

SamplID: 19082091-007BDUP							
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val %RPD
Lab pH	1.00		7.29				7.310 0.27

Batch R266407 SampType: DUP

Units

RPD Limit 10

SamplID: 19082091-008BDUP							
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val %RPD
Lab pH	1.00		7.33				7.280 0.68

STANDARD METHODS 4500-CL E (TOTAL) 1997

Batch R266526 SampType: MBLK

Units mg/L

SamplID: ICB/MLBK							
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit High Limit Date Analyzed
Chloride	4		< 4	0.5000	0	0	-100 100 09/05/2019



Quality Control Results

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Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

STANDARD METHODS 4500-CL E (TOTAL) 1997

Batch R266526	SampType: LCS	Units mg/L								
SamplID: ICV/LCS										
Analyses	Chloride	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
		4		19	20.00	0	95.0	90	110	Date Analyzed 09/05/2019

Batch R266526 SampType: MS Units mg/L

Batch R266526	SampType: MS	Units mg/L								
SamplID: 19082091-008BMS										
Analyses	Chloride	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
		20		168	100.0	77.40	90.8	85	115	Date Analyzed 09/05/2019

Batch R266526 SampType: MSD Units mg/L

Batch R266526	SampType: MSD	Units mg/L	RPD Limit 15							
SamplID: 19082091-008BMSD										
Analyses	Chloride	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	
		20		168	100.0	77.40	90.6	168.2	0.13	Date Analyzed 09/05/2019

STANDARD METHODS 4500-NO2 B (TOTAL) 2000

Batch R266308	SampType: MBLK	Units mg/L								
SamplID: MBLK										
Analyses	Nitrogen, Nitrite (as N)	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
		0.05		< 0.05	0.02500	0	0	-100	100	Date Analyzed 08/29/2019
	Nitrogen, Nitrite (as N)			< 0.05	0.02500	0	0	-100	100	08/29/2019

Batch R266308 SampType: LCS Units mg/L

Batch R266308	SampType: LCS	Units mg/L								
SamplID: LCS										
Analyses	Nitrogen, Nitrite (as N)	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
		0.25		1.10	1.100	0	100.0	90	110	Date Analyzed 08/29/2019
	Nitrogen, Nitrite (as N)			1.07	1.100	0	97.3	90	110	08/29/2019

Batch R266308 SampType: MS Units mg/L

Batch R266308	SampType: MS	Units mg/L								
SamplID: 19082091-005BMS										
Analyses	Nitrogen, Nitrite (as N)	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
		0.05		0.53	0.5000	0.03000	100.0	85	115	Date Analyzed 08/30/2019

Batch R266308 SampType: MSD Units mg/L

Batch R266308	SampType: MSD	Units mg/L	RPD Limit 10							
SamplID: 19082091-005BMSD										
Analyses	Nitrogen, Nitrite (as N)	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	
		0.05		0.53	0.5000	0.03000	99.6	0.5300	0.38	Date Analyzed 08/30/2019

STANDARD METHODS 5310 C, ORGANIC CARBON

Batch R266410	SampType: MBLK	Units mg/L								
SamplID: MB-R266410										
Analyses	Dissolved Organic Carbon	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
		1.0		< 1.0	0.4500	0	0	0	0	Date Analyzed 09/03/2019

Quality Control Results

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Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

STANDARD METHODS 5310 C, ORGANIC CARBON

Batch	R266410	SampType	LCS	Units	mg/L						
SamplID: LCS-R266410											
Analyses	RL	Qual		Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Analyzed
Dissolved Organic Carbon	10.0			54.7	52.60	0	104.0		90	110	09/03/2019

PERMANENT GASES (RSKSOP-175)

Batch	R266452	SampType	MBLK	Units	µg/L							Date
SamplID: MBLK-090419												Date
Analyses	RL	Qual		Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Analyzed	
Ethane	7.0			ND								09/04/2019
Ethene	10.0			ND								09/04/2019
Methane	4.0			ND								09/04/2019

Batch R266452 SampType: LCS

SamplID:	LCS-090419	Units	µg/L								
Analyses	RL	Qual		Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Analyzed
Ethane	7.0			70.9	100.0	0	70.9		25.5	132	09/04/2019
Ethene	10.0			74.2	100.0	0	74.2		23.6	132	09/04/2019
Methane	4.0			68.4	100.0	0	68.4		23.9	132	09/04/2019

Batch R266452 SampType: LCSD

SamplID:	LCSD-090419	Units	µg/L							RPD Limit	39.7	Date
Analyses	RL	Qual		Result	Spike	SPK	Ref Val	%REC	RPD Ref Val	%RPD	Analyzed	
Ethane	7.0			77.3	100.0	0	77.3		70.87	8.67	09/04/2019	
Ethene	10.0			81.2	100.0	0	81.2		74.21	8.95	09/04/2019	
Methane	4.0			74.8	100.0	0	74.8		68.43	8.91	09/04/2019	

SW-846 3510C,8270C, SEMI-VOLATILE ORGANIC COMPOUNDS

Batch	156900	SampType	MBLK	Units	mg/L							Date
SamplID: MBLK-156900												
Analyses	RL	Qual		Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Analyzed	
1,4-Dioxane	0.00100			ND								09/04/2019
Surr: 2-Fluorobiphenyl				0.000625	0.00100C		62.5		30	133		09/04/2019
Surr: Nitrobenzene-d5				0.000782	0.00100C		78.2		39.8	123		09/04/2019
Surr: p-Terphenyl-d14				0.000836	0.00100C		83.6		48.1	144		09/04/2019

Batch 156900 SampType: LCS

SamplID:	LCS-156900	Units	mg/L									Date
Analyses	RL	Qual		Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Analyzed	
1,4-Dioxane	0.00100			0.00122	0.00200C	0	60.8		30	101		09/04/2019
Surr: 2-Fluorobiphenyl				0.000697	0.00100C		69.7		30	133		09/04/2019
Surr: Nitrobenzene-d5				0.000793	0.00100C		79.3		39.8	123		09/04/2019
Surr: p-Terphenyl-d14				0.000899	0.00100C		89.9		48.1	144		09/04/2019

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 3510C,8270C, SEMI-VOLATILE ORGANIC COMPOUNDS

Batch	156900	SampType	LCSD	Units	mg/L	RPD Limit 40						
Analyses		RL	Qual	Result	Spike	SPK	Ref Val	%REC	RPD	Ref Val	%RPD	Date Analyzed
1,4-Dioxane		0.00100		0.00107	0.00200C	0	53.6		0.001216	12.49		09/04/2019
Surr: 2-Fluorobiphenyl				0.000700	0.00100C		70.0					09/04/2019
Surr: Nitrobenzene-d5				0.000754	0.00100C		75.4					09/04/2019
Surr: p-Terphenyl-d14				0.000910	0.00100C		91.0					09/04/2019

Quality Control Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 156975	SampType: MBLK	Units µg/L	Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
			SampID: MBLK-AE190904A-1									
1,1,1,2-Tetrachloroethane		2.0				ND						09/04/2019
1,1,1-Trichloroethane		2.0				ND						09/04/2019
1,1,2,2-Tetrachloroethane		2.0				ND						09/04/2019
1,1,2-Trichloro-1,2,2-trifluoroethane		5.0				ND						09/04/2019
1,1,2-Trichloroethane		0.5				ND						09/04/2019
1,1-Dichloro-2-propanone		30.0				ND						09/04/2019
1,1-Dichloroethane		2.0				ND						09/04/2019
1,1-Dichloroethene		2.0				ND						09/04/2019
1,1-Dichloropropene		2.0				ND						09/04/2019
1,2,3-Trichlorobenzene		2.0				ND						09/04/2019
1,2,3-Trichloropropane		2.0				ND						09/04/2019
1,2,3-Trimethylbenzene		2.0				ND						09/04/2019
1,2,4-Trichlorobenzene		2.0				ND						09/04/2019
1,2,4-Trimethylbenzene		2.0				ND						09/04/2019
1,2-Dibromo-3-chloropropane		5.0				ND						09/04/2019
1,2-Dibromoethane		2.0				ND						09/04/2019
1,2-Dichlorobenzene		2.0				ND						09/04/2019
1,2-Dichloroethane		2.0				ND						09/04/2019
1,2-Dichloropropane		2.0				ND						09/04/2019
1,3,5-Trimethylbenzene		2.0				ND						09/04/2019
1,3-Dichlorobenzene		2.0				ND						09/04/2019
1,3-Dichloropropane		2.0				ND						09/04/2019
1,4-Dichlorobenzene		2.0				ND						09/04/2019
1-Chlorobutane		5.0				ND						09/04/2019
2,2-Dichloropropane		2.0				ND						09/04/2019
2-Butanone		10.0				ND						09/04/2019
2-Chloroethyl vinyl ether		5.0				ND						09/04/2019
2-Chlorotoluene		2.0				ND						09/04/2019
2-Hexanone		10.0				ND						09/04/2019
2-Nitropropane		10.0				ND						09/04/2019
4-Chlorotoluene		2.0				ND						09/04/2019
4-Methyl-2-pentanone		10.0				ND						09/04/2019
Acetone		10.0				ND						09/04/2019
Acetonitrile		10.0				ND						09/04/2019
Acrolein		20.0				ND						09/04/2019
Acrylonitrile		5.0				ND						09/04/2019
Allyl chloride		5.0				ND						09/04/2019
Benzene		0.5				ND						09/04/2019
Bromobenzene		2.0				ND						09/04/2019
Bromochloromethane		2.0				ND						09/04/2019
Bromodichloromethane		2.0				ND						09/04/2019
Bromoform		2.0				ND						09/04/2019
Bromomethane		5.0				ND						09/04/2019
Carbon disulfide		2.0				ND						09/04/2019
Carbon tetrachloride		2.0				ND						09/04/2019
Chlorobenzene		2.0				ND						09/04/2019
Chloroethane		2.0				ND						09/04/2019

Quality Control Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 156975	SampType: MBLK	Units µg/L	Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
			SampID: MBLK-AE190904A-1									
Chloroform		2.0				ND						09/04/2019
Chloromethane		5.0				ND						09/04/2019
Chloroprene		5.0				ND						09/04/2019
cis-1,2-Dichloroethene		2.0				ND						09/04/2019
cis-1,3-Dichloropropene		2.0				ND						09/04/2019
cis-1,4-Dichloro-2-butene		2.0				ND						09/04/2019
Cyclohexanone		20.0				ND						09/04/2019
Dibromochloromethane		2.0				ND						09/04/2019
Dibromomethane		2.0				ND						09/04/2019
Dichlorodifluoromethane		2.0				ND						09/04/2019
Ethyl acetate		10.0				ND						09/04/2019
Ethyl ether		5.0				ND						09/04/2019
Ethyl methacrylate		5.0				ND						09/04/2019
Ethylbenzene		2.0				ND						09/04/2019
Hexachlorobutadiene		5.0				ND						09/04/2019
Hexachloroethane		5.0				ND						09/04/2019
Iodomethane		5.0				ND						09/04/2019
Isopropylbenzene		2.0				ND						09/04/2019
m,p-Xylenes		2.0				ND						09/04/2019
Methacrylonitrile		5.0				ND						09/04/2019
Methyl Methacrylate		5.0				ND						09/04/2019
Methyl tert-butyl ether		2.0				ND						09/04/2019
Methylacrylate		5.0				ND						09/04/2019
Methylene chloride		10.0				ND						09/04/2019
Naphthalene		5.0				ND						09/04/2019
n-Butyl acetate		2.0				ND						09/04/2019
n-Butylbenzene		2.0				ND						09/04/2019
n-Heptane		5.0				ND						09/04/2019
n-Hexane		5.0				ND						09/04/2019
Nitrobenzene		50.0				ND						09/04/2019
n-Propylbenzene		2.0				ND						09/04/2019
o-Xylene		2.0				ND						09/04/2019
Pentachloroethane		5.0				ND						09/04/2019
p-Isopropyltoluene		2.0				ND						09/04/2019
Propionitrile		10.0				ND						09/04/2019
sec-Butylbenzene		2.0				ND						09/04/2019
Styrene		2.0				ND						09/04/2019
tert-Butylbenzene		2.0				ND						09/04/2019
Tetrachloroethene		0.5				ND						09/04/2019
Tetrahydrofuran		5.0				ND						09/04/2019
Toluene		2.0				ND						09/04/2019
trans-1,2-Dichloroethene		2.0				ND						09/04/2019
trans-1,3-Dichloropropene		2.0				ND						09/04/2019
trans-1,4-Dichloro-2-butene		2.0				ND						09/04/2019
Trichloroethene		2.0				ND						09/04/2019
Trichlorofluoromethane		5.0				ND						09/04/2019
Vinyl acetate		5.0				ND						09/04/2019



Quality Control Results

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Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 156975 SampType: MBLK Units µg/L

SampID: MBLK-AE190904A-1

Analyses	RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Vinyl chloride	2.0		ND							09/04/2019
Surr: 1,2-Dichloroethane-d4			49.4	50.00		98.9		79.6	118	09/04/2019
Surr: 4-Bromofluorobenzene			50.8	50.00		101.7		83.9	115	09/04/2019
Surr: Dibromofluoromethane			48.9	50.00		97.9		84.9	113	09/04/2019
Surr: Toluene-d8			50.4	50.00		100.8		86.7	112	09/04/2019

Quality Control Results

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Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 156975	SampType: LCS	Units µg/L							
SampID: LCS-AE190904A-1									Date Analyzed
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
1,1,1,2-Tetrachloroethane	2.0		49.0	50.00	0	98.0	83.4	118	09/04/2019
1,1,1-Trichloroethane	2.0		51.8	50.00	0	103.6	79.1	123	09/04/2019
1,1,2,2-Tetrachloroethane	2.0		49.0	50.00	0	97.9	70.7	121	09/04/2019
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0		51.3	50.00	0	102.6	75.2	133	09/04/2019
1,1,2-Trichloroethane	0.5		48.6	50.00	0	97.3	79.8	117	09/04/2019
1,1-Dichloro-2-propanone	30.0		125	125.0	0	100.3	63.8	122	09/04/2019
1,1-Dichloroethane	2.0		51.0	50.00	0	101.9	75.1	122	09/04/2019
1,1-Dichloroethene	2.0		51.6	50.00	0	103.3	68.3	121	09/04/2019
1,1-Dichloropropene	2.0		49.4	50.00	0	98.8	76.7	122	09/04/2019
1,2,3-Trichlorobenzene	2.0		50.6	50.00	0	101.1	77.1	130	09/04/2019
1,2,3-Trichloropropane	2.0		47.9	50.00	0	95.8	70.6	114	09/04/2019
1,2,3-Trimethylbenzene	2.0		49.9	50.00	0	99.8	77.4	117	09/04/2019
1,2,4-Trichlorobenzene	2.0		50.7	50.00	0	101.4	79.6	128	09/04/2019
1,2,4-Trimethylbenzene	2.0		49.4	50.00	0	98.8	78.9	117	09/04/2019
1,2-Dibromo-3-chloropropane	5.0		50.0	50.00	0	100.1	68.1	123	09/04/2019
1,2-Dibromoethane	2.0		47.6	50.00	0	95.2	82.9	114	09/04/2019
1,2-Dichlorobenzene	2.0		47.5	50.00	0	94.9	75.2	120	09/04/2019
1,2-Dichloroethane	2.0		46.8	50.00	0	93.6	76.9	117	09/04/2019
1,2-Dichloropropane	2.0		47.5	50.00	0	95.0	76.4	121	09/04/2019
1,3,5-Trimethylbenzene	2.0		49.5	50.00	0	99.0	79.8	118	09/04/2019
1,3-Dichlorobenzene	2.0		47.9	50.00	0	95.7	80.5	119	09/04/2019
1,3-Dichloropropane	2.0		46.8	50.00	0	93.5	77.5	113	09/04/2019
1,4-Dichlorobenzene	2.0		47.4	50.00	0	94.7	80.2	115	09/04/2019
1-Chlorobutane	5.0		51.7	50.00	0	103.3	75.1	123	09/04/2019
2,2-Dichloropropane	2.0		54.2	50.00	0	108.4	62.4	151	09/04/2019
2-Butanone	10.0		117	125.0	0	93.7	65.7	120	09/04/2019
2-Chloroethyl vinyl ether	5.0		46.7	50.00	0	93.4	31.5	159	09/04/2019
2-Chlorotoluene	2.0		49.0	50.00	0	98.0	76	117	09/04/2019
2-Hexanone	10.0		116	125.0	0	92.9	65.1	121	09/04/2019
2-Nitropropane	10.0		488	500.0	0	97.6	70.5	133	09/04/2019
4-Chlorotoluene	2.0		48.9	50.00	0	97.9	77	117	09/04/2019
4-Methyl-2-pentanone	10.0		117	125.0	0	93.3	69.6	117	09/04/2019
Acetone	10.0		113	125.0	0	90.1	47.5	123	09/04/2019
Acetonitrile	10.0		465	500.0	0	92.9	56	136	09/04/2019
Acrolein	20.0		480	500.0	0	96.1	27	164	09/04/2019
Acrylonitrile	5.0		47.9	50.00	0	95.7	74.8	127	09/04/2019
Allyl chloride	5.0		52.0	50.00	0	104.1	66.3	134	09/04/2019
Benzene	0.5		46.8	50.00	0	93.7	75.8	121	09/04/2019
Bromobenzene	2.0		48.5	50.00	0	97.0	72.7	119	09/04/2019
Bromochloromethane	2.0		46.4	50.00	0	92.8	69	123	09/04/2019
Bromodichloromethane	2.0		49.7	50.00	0	99.4	80.8	128	09/04/2019
Bromoform	2.0		49.6	50.00	0	99.2	85.5	128	09/04/2019
Bromomethane	5.0		56.3	50.00	0	112.5	-36.7	277	09/04/2019
Carbon disulfide	2.0		48.3	50.00	0	96.5	64.9	133	09/04/2019
Carbon tetrachloride	2.0		51.2	50.00	0	102.5	79.5	129	09/04/2019
Chlorobenzene	2.0		47.7	50.00	0	95.4	82.1	113	09/04/2019
Chloroethane	2.0		51.8	50.00	0	103.7	43.9	138	09/04/2019

Quality Control Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 156975	SampType: LCS	Units µg/L								
Analyses	RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloroform	2.0		48.7	50.00	0	97.3		80.1	122	09/04/2019
Chloromethane	5.0		47.4	50.00	0	94.9		50.8	131	09/04/2019
Chloroprene	5.0		50.5	50.00	0	100.9		74.4	123	09/04/2019
cis-1,2-Dichloroethene	2.0		49.0	50.00	0	98.1		78.6	119	09/04/2019
cis-1,3-Dichloropropene	2.0		49.4	50.00	0	98.7		79	129	09/04/2019
cis-1,4-Dichloro-2-butene	2.0		52.2	50.00	0	104.4		59.7	125	09/04/2019
Cyclohexanone	20.0		437	500.0	0	87.3		15.1	162	09/04/2019
Dibromochloromethane	2.0		49.6	50.00	0	99.2		88.1	123	09/04/2019
Dibromomethane	2.0		46.9	50.00	0	93.9		75.3	120	09/04/2019
Dichlorodifluoromethane	2.0		54.6	50.00	0	109.2		35.7	155	09/04/2019
Ethyl acetate	10.0		44.5	50.00	0	89.0		66.6	119	09/04/2019
Ethyl ether	5.0		47.8	50.00	0	95.5		74.4	120	09/04/2019
Ethyl methacrylate	5.0		48.4	50.00	0	96.8		80.6	123	09/04/2019
Ethylbenzene	2.0		48.1	50.00	0	96.2		80.7	114	09/04/2019
Hexachlorobutadiene	5.0		54.5	50.00	0	109.0		68.2	141	09/04/2019
Hexachloroethane	5.0		54.7	50.00	0	109.4		69.4	125	09/04/2019
Iodomethane	5.0		52.1	50.00	0	104.1		-19.1	196	09/04/2019
Isopropylbenzene	2.0		48.8	50.00	0	97.6		81.3	116	09/04/2019
m,p-Xylenes	2.0		96.6	100.0	0	96.6		80.5	113	09/04/2019
Methacrylonitrile	5.0		48.0	50.00	0	96.0		75.3	122	09/04/2019
Methyl Methacrylate	5.0		47.4	50.00	0	94.8		71.9	121	09/04/2019
Methyl tert-butyl ether	2.0		48.5	50.00	0	97.1		79.5	121	09/04/2019
Methylacrylate	5.0		49.1	50.00	0	98.2		71.2	129	09/04/2019
Methylene chloride	10.0		45.4	50.00	0	90.9		76.2	119	09/04/2019
Naphthalene	5.0		48.0	50.00	0	95.9		76.1	129	09/04/2019
n-Butyl acetate	2.0		46.4	50.00	0	92.7		62.9	121	09/04/2019
n-Butylbenzene	2.0		49.0	50.00	0	98.0		71.6	122	09/04/2019
n-Heptane	5.0		54.5	50.00	0	109.1		55.1	130	09/04/2019
n-Hexane	5.0		54.6	50.00	0	109.2		61.9	131	09/04/2019
Nitrobenzene	50.0		468	500.0	0	93.6		32.2	151	09/04/2019
n-Propylbenzene	2.0		50.0	50.00	0	99.9		76	120	09/04/2019
o-Xylene	2.0		48.0	50.00	0	96.0		79.7	112	09/04/2019
Pentachloroethane	5.0		52.2	50.00	0	104.4		78.3	128	09/04/2019
p-Isopropyltoluene	2.0		50.0	50.00	0	100.0		76.2	122	09/04/2019
Propionitrile	10.0		474	500.0	0	94.8		67.8	125	09/04/2019
sec-Butylbenzene	2.0		50.4	50.00	0	100.9		76.6	119	09/04/2019
Styrene	2.0		48.6	50.00	0	97.2		82.8	116	09/04/2019
tert-Butylbenzene	2.0		50.2	50.00	0	100.3		74.7	117	09/04/2019
Tetrachloroethene	0.5		48.3	50.00	0	96.7		80.6	122	09/04/2019
Tetrahydrofuran	5.0		43.1	50.00	0	86.2		65.4	116	09/04/2019
Toluene	2.0		47.6	50.00	0	95.2		78.3	112	09/04/2019
trans-1,2-Dichloroethene	2.0		52.2	50.00	0	104.3		73.5	124	09/04/2019
trans-1,3-Dichloropropene	2.0		49.0	50.00	0	97.9		83.4	124	09/04/2019
trans-1,4-Dichloro-2-butene	2.0		53.1	50.00	0	106.3		58.9	132	09/04/2019
Trichloroethene	2.0		48.9	50.00	0	97.9		74.3	125	09/04/2019
Trichlorofluoromethane	5.0		52.5	50.00	0	104.9		71.5	136	09/04/2019
Vinyl acetate	5.0		49.4	50.00	0	98.9		65.9	136	09/04/2019



Quality Control Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch	156975	SampType	LCS	Units	µg/L							
SampID: LCS-AE190904A-1												
Analyses		RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed	
Vinyl chloride		2.0		50.7	50.00	0	101.5		55.8	135	09/04/2019	
Surr: 1,2-Dichloroethane-d4				49.0	50.00		97.9		79.6	118	09/04/2019	
Surr: 4-Bromofluorobenzene				50.5	50.00		100.9		83.9	115	09/04/2019	
Surr: Dibromofluoromethane				49.5	50.00		99.1		84.9	113	09/04/2019	
Surr: Toluene-d8				50.0	50.00		100.0		86.7	112	09/04/2019	

Quality Control Results

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Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch	156975	SampType	LCSD	Units	µg/L	RPD Limit 40						Date Analyzed	
SampID: LCSD-AE190904A-1													
Analyses		RL	Qual			Result	Spike	SPK	Ref Val	%REC	RPD	Ref Val	%RPD
1,1,1,2-Tetrachloroethane		2.0				48.9	50.00	0	97.8		48.98	0.12	09/04/2019
1,1,1-Trichloroethane		2.0				51.6	50.00	0	103.2		51.80	0.37	09/04/2019
1,1,2,2-Tetrachloroethane		2.0				48.8	50.00	0	97.6		48.96	0.35	09/04/2019
1,1,2-Trichloro-1,2,2-trifluoroethane		5.0				51.0	50.00	0	101.9		51.32	0.70	09/04/2019
1,1,2-Trichloroethane		0.5				48.7	50.00	0	97.4		48.64	0.12	09/04/2019
1,1-Dichloro-2-propanone		30.0				123	125.0	0	98.4		125.4	1.87	09/04/2019
1,1-Dichloroethane		2.0				50.4	50.00	0	100.8		50.97	1.12	09/04/2019
1,1-Dichloroethene		2.0				51.3	50.00	0	102.6		51.63	0.66	09/04/2019
1,1-Dichloropropene		2.0				49.7	50.00	0	99.4		49.39	0.63	09/04/2019
1,2,3-Trichlorobenzene		2.0				50.3	50.00	0	100.5		50.55	0.56	09/04/2019
1,2,3-Trichloropropane		2.0				48.2	50.00	0	96.5		47.92	0.69	09/04/2019
1,2,3-Trimethylbenzene		2.0				49.7	50.00	0	99.4		49.90	0.42	09/04/2019
1,2,4-Trichlorobenzene		2.0				50.1	50.00	0	100.3		50.70	1.13	09/04/2019
1,2,4-Trimethylbenzene		2.0				48.9	50.00	0	97.8		49.39	1.04	09/04/2019
1,2-Dibromo-3-chloropropane		5.0				50.7	50.00	0	101.4		50.05	1.25	09/04/2019
1,2-Dibromoethane		2.0				47.0	50.00	0	94.0		47.59	1.20	09/04/2019
1,2-Dichlorobenzene		2.0				47.5	50.00	0	95.0		47.46	0.04	09/04/2019
1,2-Dichloroethane		2.0				46.8	50.00	0	93.7		46.82	0.04	09/04/2019
1,2-Dichloropropane		2.0				47.1	50.00	0	94.2		47.52	0.91	09/04/2019
1,3,5-Trimethylbenzene		2.0				49.7	50.00	0	99.4		49.48	0.46	09/04/2019
1,3-Dichlorobenzene		2.0				47.8	50.00	0	95.5		47.87	0.21	09/04/2019
1,3-Dichloropropane		2.0				46.2	50.00	0	92.3		46.75	1.29	09/04/2019
1,4-Dichlorobenzene		2.0				47.2	50.00	0	94.4		47.36	0.30	09/04/2019
1-Chlorobutane		5.0				51.6	50.00	0	103.2		51.66	0.10	09/04/2019
2,2-Dichloropropane		2.0				53.3	50.00	0	106.7		54.21	1.64	09/04/2019
2-Butanone		10.0				116	125.0	0	93.0		117.2	0.80	09/04/2019
2-Chloroethyl vinyl ether		5.0				47.7	50.00	0	95.4		46.71	2.08	09/04/2019
2-Chlorotoluene		2.0				49.1	50.00	0	98.2		49.01	0.22	09/04/2019
2-Hexanone		10.0				115	125.0	0	92.4		116.1	0.55	09/04/2019
2-Nitropropane		10.0				488	500.0	0	97.5		488.2	0.13	09/04/2019
4-Chlorotoluene		2.0				48.8	50.00	0	97.5		48.94	0.35	09/04/2019
4-Methyl-2-pentanone		10.0				117	125.0	0	93.4		116.7	0.13	09/04/2019
Acetone		10.0				109	125.0	0	87.4		112.7	3.06	09/04/2019
Acetonitrile		10.0				462	500.0	0	92.4		464.7	0.62	09/04/2019
Acrolein		20.0				485	500.0	0	97.0		480.3	1.02	09/04/2019
Acrylonitrile		5.0				48.0	50.00	0	96.0		47.86	0.33	09/04/2019
Allyl chloride		5.0				50.4	50.00	0	100.9		52.05	3.12	09/04/2019
Benzene		0.5				46.7	50.00	0	93.4		46.84	0.26	09/04/2019
Bromobenzene		2.0				48.6	50.00	0	97.1		48.49	0.12	09/04/2019
Bromochloromethane		2.0				45.9	50.00	0	91.9		46.42	1.06	09/04/2019
Bromodichloromethane		2.0				49.2	50.00	0	98.3		49.69	1.05	09/04/2019
Bromoform		2.0				49.3	50.00	0	98.6		49.59	0.61	09/04/2019
Bromomethane		5.0				56.7	50.00	0	113.4		56.27	0.74	09/04/2019
Carbon disulfide		2.0				48.0	50.00	0	95.9		48.27	0.64	09/04/2019
Carbon tetrachloride		2.0				51.4	50.00	0	102.8		51.25	0.29	09/04/2019
Chlorobenzene		2.0				47.5	50.00	0	95.1		47.71	0.38	09/04/2019
Chloroethane		2.0				52.1	50.00	0	104.3		51.85	0.56	09/04/2019

Quality Control Results

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Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch	156975	SampType	LCSD	Units	µg/L	RPD Limit 40									Date Analyzed
				Sample ID:	LCSD-AE190904A-1	Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	
Chloroform				2.0		48.7	50.00	0	97.4		48.66		0.10		09/04/2019
Chloromethane				5.0		47.6	50.00	0	95.2		47.44		0.34		09/04/2019
Chloroprene				5.0		50.3	50.00	0	100.6		50.47		0.36		09/04/2019
cis-1,2-Dichloroethene				2.0		48.8	50.00	0	97.5		49.03		0.57		09/04/2019
cis-1,3-Dichloropropene				2.0		48.9	50.00	0	97.8		49.35		0.94		09/04/2019
cis-1,4-Dichloro-2-butene				2.0		51.4	50.00	0	102.7		52.21		1.62		09/04/2019
Cyclohexanone				20.0		440	500.0	0	88.0		436.6		0.83		09/04/2019
Dibromochloromethane				2.0		49.0	50.00	0	98.0		49.59		1.18		09/04/2019
Dibromomethane				2.0		47.0	50.00	0	93.9		46.94		0.04		09/04/2019
Dichlorodifluoromethane				2.0		54.0	50.00	0	108.1		54.59		1.01		09/04/2019
Ethyl acetate				10.0		45.1	50.00	0	90.2		44.50		1.32		09/04/2019
Ethyl ether				5.0		47.5	50.00	0	95.0		47.75		0.52		09/04/2019
Ethyl methacrylate				5.0		48.2	50.00	0	96.4		48.39		0.35		09/04/2019
Ethylbenzene				2.0		48.0	50.00	0	96.1		48.10		0.12		09/04/2019
Hexachlorobutadiene				5.0		54.4	50.00	0	108.7		54.52		0.31		09/04/2019
Hexachloroethane				5.0		54.5	50.00	0	108.9		54.68		0.38		09/04/2019
Iodomethane				5.0		52.0	50.00	0	103.9		52.06		0.17		09/04/2019
Isopropylbenzene				2.0		48.6	50.00	0	97.2		48.82		0.41		09/04/2019
m,p-Xylenes				2.0		96.2	100.0	0	96.2		96.59		0.35		09/04/2019
Methacrylonitrile				5.0		48.0	50.00	0	95.9		47.99		0.06		09/04/2019
Methyl Methacrylate				5.0		47.2	50.00	0	94.3		47.42		0.57		09/04/2019
Methyl tert-butyl ether				2.0		48.3	50.00	0	96.6		48.54		0.54		09/04/2019
Methylacrylate				5.0		49.2	50.00	0	98.5		49.10		0.26		09/04/2019
Methylene chloride				10.0		45.5	50.00	0	91.1		45.44		0.20		09/04/2019
Naphthalene				5.0		47.7	50.00	0	95.4		47.97		0.54		09/04/2019
n-Butyl acetate				2.0		46.4	50.00	0	92.8		46.35		0.13		09/04/2019
n-Butylbenzene				2.0		49.2	50.00	0	98.5		48.98		0.55		09/04/2019
n-Heptane				5.0		54.7	50.00	0	109.3		54.54		0.24		09/04/2019
n-Hexane				5.0		54.4	50.00	0	108.8		54.60		0.35		09/04/2019
Nitrobenzene				50.0		473	500.0	0	94.6		468.0		1.09		09/04/2019
n-Propylbenzene				2.0		49.9	50.00	0	99.8		49.97		0.10		09/04/2019
o-Xylene				2.0		47.7	50.00	0	95.4		48.02		0.65		09/04/2019
Pentachloroethane				5.0		51.9	50.00	0	103.8		52.18		0.52		09/04/2019
p-Isopropyltoluene				2.0		50.0	50.00	0	100.0		49.99		0.06		09/04/2019
Propionitrile				10.0		477	500.0	0	95.4		474.2		0.56		09/04/2019
sec-Butylbenzene				2.0		50.4	50.00	0	100.7		50.43		0.12		09/04/2019
Styrene				2.0		48.3	50.00	0	96.6		48.62		0.62		09/04/2019
tert-Butylbenzene				2.0		50.3	50.00	0	100.6		50.16		0.30		09/04/2019
Tetrachloroethene				0.5		48.6	50.00	0	97.1		48.33		0.45		09/04/2019
Tetrahydrofuran				5.0		42.3	50.00	0	84.6		43.11		1.92		09/04/2019
Toluene				2.0		47.3	50.00	0	94.7		47.61		0.57		09/04/2019
trans-1,2-Dichloroethene				2.0		52.3	50.00	0	104.6		52.16		0.29		09/04/2019
trans-1,3-Dichloropropene				2.0		48.7	50.00	0	97.4		48.97		0.57		09/04/2019
trans-1,4-Dichloro-2-butene				2.0		52.9	50.00	0	105.9		53.13		0.38		09/04/2019
Trichloroethene				2.0		48.8	50.00	0	97.5		48.93		0.33		09/04/2019
Trichlorofluoromethane				5.0		52.9	50.00	0	105.8		52.47		0.82		09/04/2019
Vinyl acetate				5.0		49.5	50.00	0	99.0		49.44		0.16		09/04/2019

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch	156975	SampType	LCSD	Units	µg/L	RPD Limit 40						
Analyses		RL	Qual	Result	Spike	SPK	Ref Val	%REC	RPD	Ref Val	%RPD	Date Analyzed
Vinyl chloride		2.0		50.7	50.00	0	101.4		50.73	0.06		09/04/2019
Surr: 1,2-Dichloroethane-d4				48.7	50.00		97.4					09/04/2019
Surr: 4-Bromofluorobenzene				50.4	50.00		100.8					09/04/2019
Surr: Dibromofluoromethane				49.9	50.00		99.8					09/04/2019
Surr: Toluene-d8				49.7	50.00		99.4					09/04/2019

Quality Control Results

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Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch	156991	SampType	MBLK	Units	µg/L	Analyses	RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed
			SampID: MBLK-AE190905A-1													
1,1,1,2-Tetrachloroethane				2.0					ND							09/05/2019
1,1,1-Trichloroethane				2.0					ND							09/05/2019
1,1,2,2-Tetrachloroethane				2.0					ND							09/05/2019
1,1,2-Trichloro-1,2,2-trifluoroethane				5.0					ND							09/05/2019
1,1,2-Trichloroethane				0.5					ND							09/05/2019
1,1-Dichloro-2-propanone				30.0					ND							09/05/2019
1,1-Dichloroethane				2.0					ND							09/05/2019
1,1-Dichloroethene				2.0					ND							09/05/2019
1,1-Dichloropropene				2.0					ND							09/05/2019
1,2,3-Trichlorobenzene				2.0					ND							09/05/2019
1,2,3-Trichloropropane				2.0					ND							09/05/2019
1,2,3-Trimethylbenzene				2.0					ND							09/05/2019
1,2,4-Trichlorobenzene				2.0					ND							09/05/2019
1,2,4-Trimethylbenzene				2.0					ND							09/05/2019
1,2-Dibromo-3-chloropropane				5.0					ND							09/05/2019
1,2-Dibromoethane				2.0					ND							09/05/2019
1,2-Dichlorobenzene				2.0					ND							09/05/2019
1,2-Dichloroethane				2.0					ND							09/05/2019
1,2-Dichloropropane				2.0					ND							09/05/2019
1,3,5-Trimethylbenzene				2.0					ND							09/05/2019
1,3-Dichlorobenzene				2.0					ND							09/05/2019
1,3-Dichloropropane				2.0					ND							09/05/2019
1,4-Dichlorobenzene				2.0					ND							09/05/2019
1-Chlorobutane				5.0					ND							09/05/2019
2,2-Dichloropropane				2.0					ND							09/05/2019
2-Butanone				10.0					ND							09/05/2019
2-Chloroethyl vinyl ether				5.0					ND							09/05/2019
2-Chlorotoluene				2.0					ND							09/05/2019
2-Hexanone				10.0					ND							09/05/2019
2-Nitropropane				10.0					ND							09/05/2019
4-Chlorotoluene				2.0					ND							09/05/2019
4-Methyl-2-pentanone				10.0					ND							09/05/2019
Acetone				10.0					ND							09/05/2019
Acetonitrile				10.0					ND							09/05/2019
Acrolein				20.0					ND							09/05/2019
Acrylonitrile				5.0					ND							09/05/2019
Allyl chloride				5.0					ND							09/05/2019
Benzene				0.5					ND							09/05/2019
Bromobenzene				2.0					ND							09/05/2019
Bromochloromethane				2.0					ND							09/05/2019
Bromodichloromethane				2.0					ND							09/05/2019
Bromoform				2.0					ND							09/05/2019
Bromomethane				5.0					ND							09/05/2019
Carbon disulfide				2.0					ND							09/05/2019
Carbon tetrachloride				2.0					ND							09/05/2019
Chlorobenzene				2.0					ND							09/05/2019
Chloroethane				2.0					ND							09/05/2019

Quality Control Results

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Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch	156991	SampType	MBLK	Units	µg/L	Analyses	RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed
			SampID: MBLK-AE190905A-1													
Chloroform				2.0		ND										09/05/2019
Chloromethane				5.0		ND										09/05/2019
Chloroprene				5.0		ND										09/05/2019
cis-1,2-Dichloroethene				2.0		ND										09/05/2019
cis-1,3-Dichloropropene				2.0		ND										09/05/2019
cis-1,4-Dichloro-2-butene				2.0		ND										09/05/2019
Cyclohexanone				20.0		ND										09/05/2019
Dibromochloromethane				2.0		ND										09/05/2019
Dibromomethane				2.0		ND										09/05/2019
Dichlorodifluoromethane				2.0		ND										09/05/2019
Ethyl acetate				10.0		ND										09/05/2019
Ethyl ether				5.0		ND										09/05/2019
Ethyl methacrylate				5.0		ND										09/05/2019
Ethylbenzene				2.0		ND										09/05/2019
Hexachlorobutadiene				5.0		ND										09/05/2019
Hexachloroethane				5.0		ND										09/05/2019
Iodomethane				5.0		ND										09/05/2019
Isopropylbenzene				2.0		ND										09/05/2019
m,p-Xylenes				2.0		ND										09/05/2019
Methacrylonitrile				5.0		ND										09/05/2019
Methyl Methacrylate				5.0		ND										09/05/2019
Methyl tert-butyl ether				2.0		ND										09/05/2019
Methylacrylate				5.0		ND										09/05/2019
Methylene chloride				10.0		ND										09/05/2019
Naphthalene				5.0		ND										09/05/2019
n-Butyl acetate				2.0		ND										09/05/2019
n-Butylbenzene				2.0		ND										09/05/2019
n-Heptane				5.0		ND										09/05/2019
n-Hexane				5.0		ND										09/05/2019
Nitrobenzene				50.0		ND										09/05/2019
n-Propylbenzene				2.0		ND										09/05/2019
o-Xylene				2.0		ND										09/05/2019
Pentachloroethane				5.0		ND										09/05/2019
p-Isopropyltoluene				2.0		ND										09/05/2019
Propionitrile				10.0		ND										09/05/2019
sec-Butylbenzene				2.0		ND										09/05/2019
Styrene				2.0		ND										09/05/2019
tert-Butylbenzene				2.0		ND										09/05/2019
Tetrachloroethene				0.5		ND										09/05/2019
Tetrahydrofuran				5.0		ND										09/05/2019
Toluene				2.0		ND										09/05/2019
trans-1,2-Dichloroethene				2.0		ND										09/05/2019
trans-1,3-Dichloropropene				2.0		ND										09/05/2019
trans-1,4-Dichloro-2-butene				2.0		ND										09/05/2019
Trichloroethene				2.0		ND										09/05/2019
Trichlorofluoromethane				5.0		ND										09/05/2019
Vinyl acetate				5.0		ND										09/05/2019



Quality Control Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch	156991	SampType	MBLK	Units	µg/L						Date Analyzed	
SampID:		MBLK-AE190905A-1										
Analyses		RL	Qual		Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	
Vinyl chloride		2.0			ND						09/05/2019	
Surr: 1,2-Dichloroethane-d4					50.5	50.00		101.1		79.6	118	09/05/2019
Surr: 4-Bromofluorobenzene					50.0	50.00		99.9		83.9	115	09/05/2019
Surr: Dibromofluoromethane					49.3	50.00		98.6		84.9	113	09/05/2019
Surr: Toluene-d8					49.7	50.00		99.4		86.7	112	09/05/2019

Quality Control Results

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Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 156991	SampType: LCS	Units µg/L								
Analyses	RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1,2-Tetrachloroethane	2.0		47.9	50.00	0	95.8		83.4	118	09/05/2019
1,1,1-Trichloroethane	2.0		50.6	50.00	0	101.3		79.1	123	09/05/2019
1,1,2,2-Tetrachloroethane	2.0		47.2	50.00	0	94.4		70.7	121	09/05/2019
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0		49.2	50.00	0	98.4		75.2	133	09/05/2019
1,1,2-Trichloroethane	0.5		48.8	50.00	0	97.5		79.8	117	09/05/2019
1,1-Dichloro-2-propanone	30.0		124	125.0	0	99.6		63.8	122	09/05/2019
1,1-Dichloroethane	2.0		49.8	50.00	0	99.6		75.1	122	09/05/2019
1,1-Dichloroethene	2.0		50.3	50.00	0	100.5		68.3	121	09/05/2019
1,1-Dichloropropene	2.0		48.0	50.00	0	96.0		76.7	122	09/05/2019
1,2,3-Trichlorobenzene	2.0		49.5	50.00	0	99.0		77.1	130	09/05/2019
1,2,3-Trichloropropane	2.0		47.8	50.00	0	95.7		70.6	114	09/05/2019
1,2,3-Trimethylbenzene	2.0		48.0	50.00	0	95.9		77.4	117	09/05/2019
1,2,4-Trichlorobenzene	2.0		49.4	50.00	0	98.9		79.6	128	09/05/2019
1,2,4-Trimethylbenzene	2.0		47.3	50.00	0	94.6		78.9	117	09/05/2019
1,2-Dibromo-3-chloropropane	5.0		49.6	50.00	0	99.1		68.1	123	09/05/2019
1,2-Dibromoethane	2.0		47.6	50.00	0	95.2		82.9	114	09/05/2019
1,2-Dichlorobenzene	2.0		46.0	50.00	0	92.0		75.2	120	09/05/2019
1,2-Dichloroethane	2.0		47.0	50.00	0	94.0		76.9	117	09/05/2019
1,2-Dichloropropane	2.0		46.1	50.00	0	92.2		76.4	121	09/05/2019
1,3,5-Trimethylbenzene	2.0		47.5	50.00	0	95.1		79.8	118	09/05/2019
1,3-Dichlorobenzene	2.0		46.3	50.00	0	92.5		80.5	119	09/05/2019
1,3-Dichloropropane	2.0		46.3	50.00	0	92.7		77.5	113	09/05/2019
1,4-Dichlorobenzene	2.0		45.6	50.00	0	91.2		80.2	115	09/05/2019
1-Chlorobutane	5.0		50.6	50.00	0	101.2		75.1	123	09/05/2019
2,2-Dichloropropane	2.0		52.9	50.00	0	105.8		62.4	151	09/05/2019
2-Butanone	10.0		119	125.0	0	95.3		65.7	120	09/05/2019
2-Chloroethyl vinyl ether	5.0		47.3	50.00	0	94.5		31.5	159	09/05/2019
2-Chlorotoluene	2.0		47.1	50.00	0	94.2		76	117	09/05/2019
2-Hexanone	10.0		117	125.0	0	93.4		65.1	121	09/05/2019
2-Nitropropane	10.0		499	500.0	0	99.7		70.5	133	09/05/2019
4-Chlorotoluene	2.0		47.2	50.00	0	94.3		77	117	09/05/2019
4-Methyl-2-pentanone	10.0		118	125.0	0	94.3		69.6	117	09/05/2019
Acetone	10.0		114	125.0	0	91.3		47.5	123	09/05/2019
Acetonitrile	10.0		477	500.0	0	95.4		56	136	09/05/2019
Acrolein	20.0		490	500.0	0	97.9		27	164	09/05/2019
Acrylonitrile	5.0		48.9	50.00	0	97.9		74.8	127	09/05/2019
Allyl chloride	5.0		49.9	50.00	0	99.7		66.3	134	09/05/2019
Benzene	0.5		46.0	50.00	0	91.9		75.8	121	09/05/2019
Bromobenzene	2.0		46.9	50.00	0	93.8		72.7	119	09/05/2019
Bromochloromethane	2.0		46.7	50.00	0	93.3		69	123	09/05/2019
Bromodichloromethane	2.0		48.6	50.00	0	97.2		80.8	128	09/05/2019
Bromoform	2.0		49.0	50.00	0	98.0		85.5	128	09/05/2019
Bromomethane	5.0		52.8	50.00	0	105.5		-36.7	277	09/05/2019
Carbon disulfide	2.0		46.8	50.00	0	93.5		64.9	133	09/05/2019
Carbon tetrachloride	2.0		50.1	50.00	0	100.1		79.5	129	09/05/2019
Chlorobenzene	2.0		46.6	50.00	0	93.2		82.1	113	09/05/2019
Chloroethane	2.0		50.3	50.00	0	100.7		43.9	138	09/05/2019

Quality Control Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch	156991	SampType	LCS	Units	µg/L	Analyses	RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed				
						SampID:	LCS-AE190905A-1													
Chloroform				2.0		Chloroform	2.0		47.8	50.00	0	95.6		80.1	122	09/05/2019				
Chloromethane				5.0		Chloromethane	5.0		45.2	50.00	0	90.4		50.8	131	09/05/2019				
Chloroprene				5.0		Chloroprene	5.0		49.3	50.00	0	98.7		74.4	123	09/05/2019				
cis-1,2-Dichloroethene				2.0		cis-1,2-Dichloroethene	2.0		48.6	50.00	0	97.2		78.6	119	09/05/2019				
cis-1,3-Dichloropropene				2.0		cis-1,3-Dichloropropene	2.0		48.6	50.00	0	97.2		79	129	09/05/2019				
cis-1,4-Dichloro-2-butene				2.0		cis-1,4-Dichloro-2-butene	2.0		50.8	50.00	0	101.6		59.7	125	09/05/2019				
Cyclohexanone				20.0		Cyclohexanone	20.0		455	500.0	0	90.9		15.1	162	09/05/2019				
Dibromochloromethane				2.0		Dibromochloromethane	2.0		48.8	50.00	0	97.5		88.1	123	09/05/2019				
Dibromomethane				2.0		Dibromomethane	2.0		47.2	50.00	0	94.3		75.3	120	09/05/2019				
Dichlorodifluoromethane				2.0		Dichlorodifluoromethane	2.0		51.5	50.00	0	103.0		35.7	155	09/05/2019				
Ethyl acetate				10.0		Ethyl acetate	10.0		45.4	50.00	0	90.8		66.6	119	09/05/2019				
Ethyl ether				5.0		Ethyl ether	5.0		48.5	50.00	0	96.9		74.4	120	09/05/2019				
Ethyl methacrylate				5.0		Ethyl methacrylate	5.0		48.1	50.00	0	96.2		80.6	123	09/05/2019				
Ethylbenzene				2.0		Ethylbenzene	2.0		46.8	50.00	0	93.5		80.7	114	09/05/2019				
Hexachlorobutadiene				5.0		Hexachlorobutadiene	5.0		53.5	50.00	0	107.0		68.2	141	09/05/2019				
Hexachloroethane				5.0		Hexachloroethane	5.0		52.6	50.00	0	105.2		69.4	125	09/05/2019				
Iodomethane				5.0		Iodomethane	5.0		49.8	50.00	0	99.6		-19.1	196	09/05/2019				
Isopropylbenzene				2.0		Isopropylbenzene	2.0		47.4	50.00	0	94.8		81.3	116	09/05/2019				
m,p-Xylenes				2.0		m,p-Xylenes	2.0		93.9	100.0	0	93.9		80.5	113	09/05/2019				
Methacrylonitrile				5.0		Methacrylonitrile	5.0		48.8	50.00	0	97.5		75.3	122	09/05/2019				
Methyl Methacrylate				5.0		Methyl Methacrylate	5.0		48.1	50.00	0	96.2		71.9	121	09/05/2019				
Methyl tert-butyl ether				2.0		Methyl tert-butyl ether	2.0		48.5	50.00	0	96.9		79.5	121	09/05/2019				
Methylacrylate				5.0		Methylacrylate	5.0		49.9	50.00	0	99.8		71.2	129	09/05/2019				
Methylene chloride				10.0		Methylene chloride	10.0		45.6	50.00	0	91.2		76.2	119	09/05/2019				
Naphthalene				5.0		Naphthalene	5.0		47.1	50.00	0	94.1		76.1	129	09/05/2019				
n-Butyl acetate				2.0		n-Butyl acetate	2.0		46.4	50.00	0	92.8		62.9	121	09/05/2019				
n-Butylbenzene				2.0		n-Butylbenzene	2.0		47.7	50.00	0	95.3		71.6	122	09/05/2019				
n-Heptane				5.0		n-Heptane	5.0		54.4	50.00	0	108.7		55.1	130	09/05/2019				
n-Hexane				5.0		n-Hexane	5.0		52.8	50.00	0	105.6		61.9	131	09/05/2019				
Nitrobenzene				50.0		Nitrobenzene	50.0		454	500.0	0	90.9		32.2	151	09/05/2019				
n-Propylbenzene				2.0		n-Propylbenzene	2.0		48.0	50.00	0	96.0		76	120	09/05/2019				
o-Xylene				2.0		o-Xylene	2.0		46.6	50.00	0	93.3		79.7	112	09/05/2019				
Pentachloroethane				5.0		Pentachloroethane	5.0		50.6	50.00	0	101.2		78.3	128	09/05/2019				
p-Isopropyltoluene				2.0		p-Isopropyltoluene	2.0		48.4	50.00	0	96.8		76.2	122	09/05/2019				
Propionitrile				10.0		Propionitrile	10.0		482	500.0	0	96.5		67.8	125	09/05/2019				
sec-Butylbenzene				2.0		sec-Butylbenzene	2.0		48.3	50.00	0	96.7		76.6	119	09/05/2019				
Styrene				2.0		Styrene	2.0		47.4	50.00	0	94.7		82.8	116	09/05/2019				
tert-Butylbenzene				2.0		tert-Butylbenzene	2.0		48.5	50.00	0	97.1		74.7	117	09/05/2019				
Tetrachloroethene				0.5		Tetrachloroethene	0.5		47.0	50.00	0	93.9		80.6	122	09/05/2019				
Tetrahydrofuran				5.0		Tetrahydrofuran	5.0		42.4	50.00	0	84.8		65.4	116	09/05/2019				
Toluene				2.0		Toluene	2.0		46.4	50.00	0	92.7		78.3	112	09/05/2019				
trans-1,2-Dichloroethene				2.0		trans-1,2-Dichloroethene	2.0		51.3	50.00	0	102.6		73.5	124	09/05/2019				
trans-1,3-Dichloropropene				2.0		trans-1,3-Dichloropropene	2.0		48.8	50.00	0	97.6		83.4	124	09/05/2019				
trans-1,4-Dichloro-2-butene				2.0		trans-1,4-Dichloro-2-butene	2.0		51.0	50.00	0	102.0		58.9	132	09/05/2019				
Trichloroethene				2.0		Trichloroethene	2.0		47.9	50.00	0	95.8		74.3	125	09/05/2019				
Trichlorofluoromethane				5.0		Trichlorofluoromethane	5.0		52.0	50.00	0	104.0		71.5	136	09/05/2019				
Vinyl acetate				5.0		Vinyl acetate	5.0		50.0	50.00	0	99.9		65.9	136	09/05/2019				



Quality Control Results

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Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch	156991	SampType	LCS	Units	µg/L							
SampID: LCS-AE190905A-1												
Analyses		RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed	
Vinyl chloride		2.0		49.0	50.00	0	98.0	98.0	55.8	135	09/05/2019	
Surr: 1,2-Dichloroethane-d4				49.1	50.00		98.2	98.2	79.6	118	09/05/2019	
Surr: 4-Bromofluorobenzene				49.6	50.00		99.2	99.2	83.9	115	09/05/2019	
Surr: Dibromofluoromethane				49.1	50.00		98.3	98.3	84.9	113	09/05/2019	
Surr: Toluene-d8				49.6	50.00		99.1	99.1	86.7	112	09/05/2019	

Quality Control Results

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Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch	156991	SampType	LCSD	Units	µg/L	RPD Limit 40						Date Analyzed	
SampID: LCSD-AE190905A-1													
Analyses		RL	Qual			Result	Spike	SPK	Ref Val	%REC	RPD	Ref Val	%RPD
1,1,1,2-Tetrachloroethane		2.0				47.1	50.00	0	94.2		47.88	1.66	09/05/2019
1,1,1-Trichloroethane		2.0				48.7	50.00	0	97.4		50.64	3.93	09/05/2019
1,1,2,2-Tetrachloroethane		2.0				46.9	50.00	0	93.8		47.19	0.60	09/05/2019
1,1,2-Trichloro-1,2,2-trifluoroethane		5.0				46.6	50.00	0	93.2		49.19	5.45	09/05/2019
1,1,2-Trichloroethane		0.5				48.1	50.00	0	96.2		48.75	1.34	09/05/2019
1,1-Dichloro-2-propanone		30.0				122	125.0	0	97.8		124.4	1.73	09/05/2019
1,1-Dichloroethane		2.0				48.5	50.00	0	97.1		49.78	2.54	09/05/2019
1,1-Dichloroethene		2.0				48.0	50.00	0	95.9		50.27	4.68	09/05/2019
1,1-Dichloropropene		2.0				45.8	50.00	0	91.6		48.01	4.69	09/05/2019
1,2,3-Trichlorobenzene		2.0				48.2	50.00	0	96.3		49.49	2.70	09/05/2019
1,2,3-Trichloropropane		2.0				46.6	50.00	0	93.2		47.85	2.69	09/05/2019
1,2,3-Trimethylbenzene		2.0				47.4	50.00	0	94.8		47.97	1.24	09/05/2019
1,2,4-Trichlorobenzene		2.0				48.0	50.00	0	96.0		49.44	2.98	09/05/2019
1,2,4-Trimethylbenzene		2.0				46.0	50.00	0	92.0		47.28	2.79	09/05/2019
1,2-Dibromo-3-chloropropane		5.0				48.3	50.00	0	96.6		49.57	2.55	09/05/2019
1,2-Dibromoethane		2.0				46.8	50.00	0	93.7		47.59	1.61	09/05/2019
1,2-Dichlorobenzene		2.0				45.5	50.00	0	91.0		46.01	1.16	09/05/2019
1,2-Dichloroethane		2.0				46.3	50.00	0	92.5		47.01	1.61	09/05/2019
1,2-Dichloropropane		2.0				45.6	50.00	0	91.3		46.10	1.02	09/05/2019
1,3,5-Trimethylbenzene		2.0				46.5	50.00	0	93.0		47.54	2.23	09/05/2019
1,3-Dichlorobenzene		2.0				45.4	50.00	0	90.9		46.27	1.79	09/05/2019
1,3-Dichloropropane		2.0				46.1	50.00	0	92.2		46.33	0.48	09/05/2019
1,4-Dichlorobenzene		2.0				44.7	50.00	0	89.4		45.62	2.01	09/05/2019
1-Chlorobutane		5.0				48.4	50.00	0	96.7		50.59	4.53	09/05/2019
2,2-Dichloropropane		2.0				50.3	50.00	0	100.6		52.88	4.98	09/05/2019
2-Butanone		10.0				115	125.0	0	92.1		119.1	3.45	09/05/2019
2-Chloroethyl vinyl ether		5.0				46.3	50.00	0	92.7		47.26	1.99	09/05/2019
2-Chlorotoluene		2.0				45.8	50.00	0	91.6		47.08	2.78	09/05/2019
2-Hexanone		10.0				114	125.0	0	91.3		116.7	2.24	09/05/2019
2-Nitropropane		10.0				488	500.0	0	97.6		498.5	2.18	09/05/2019
4-Chlorotoluene		2.0				45.9	50.00	0	91.8		47.15	2.71	09/05/2019
4-Methyl-2-pentanone		10.0				115	125.0	0	92.1		117.9	2.35	09/05/2019
Acetone		10.0				113	125.0	0	90.7		114.1	0.58	09/05/2019
Acetonitrile		10.0				437	500.0	0	87.4		476.8	8.67	09/05/2019
Acrolein		20.0				472	500.0	0	94.4		489.5	3.68	09/05/2019
Acrylonitrile		5.0				47.3	50.00	0	94.6		48.93	3.43	09/05/2019
Allyl chloride		5.0				48.3	50.00	0	96.7		49.87	3.14	09/05/2019
Benzene		0.5				44.8	50.00	0	89.5		45.96	2.67	09/05/2019
Bromobenzene		2.0				45.9	50.00	0	91.8		46.91	2.22	09/05/2019
Bromochloromethane		2.0				46.0	50.00	0	92.1		46.66	1.32	09/05/2019
Bromodichloromethane		2.0				47.9	50.00	0	95.8		48.58	1.37	09/05/2019
Bromoform		2.0				49.0	50.00	0	98.0		49.02	0.08	09/05/2019
Bromomethane		5.0				53.8	50.00	0	107.5		52.75	1.90	09/05/2019
Carbon disulfide		2.0				44.6	50.00	0	89.2		46.75	4.75	09/05/2019
Carbon tetrachloride		2.0				48.0	50.00	0	96.0		50.07	4.18	09/05/2019
Chlorobenzene		2.0				45.7	50.00	0	91.3		46.58	1.97	09/05/2019
Chloroethane		2.0				49.0	50.00	0	97.9		50.34	2.78	09/05/2019

Quality Control Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch	156991	SampType	LCSD	Units	µg/L	RPD Limit 40						Date Analyzed
SampID: LCSD-AE190905A-1												
Analyses		RL	Qual		Result	Spike	SPK	Ref Val	%REC	RPD	Ref Val	%RPD
Chloroform		2.0			46.9	50.00	0	93.8		47.82	1.99	09/05/2019
Chloromethane		5.0			43.3	50.00	0	86.7		45.18	4.18	09/05/2019
Chloroprene		5.0			47.3	50.00	0	94.5		49.34	4.29	09/05/2019
cis-1,2-Dichloroethene		2.0			46.6	50.00	0	93.1		48.58	4.22	09/05/2019
cis-1,3-Dichloropropene		2.0			47.9	50.00	0	95.9		48.62	1.41	09/05/2019
cis-1,4-Dichloro-2-butene		2.0			49.5	50.00	0	99.0		50.81	2.65	09/05/2019
Cyclohexanone		20.0			44.3	500.0	0	88.6		454.5	2.61	09/05/2019
Dibromochloromethane		2.0			48.3	50.00	0	96.6		48.76	0.97	09/05/2019
Dibromomethane		2.0			46.6	50.00	0	93.2		47.17	1.24	09/05/2019
Dichlorodifluoromethane		2.0			48.0	50.00	0	96.1		51.51	6.95	09/05/2019
Ethyl acetate		10.0			44.5	50.00	0	89.0		45.38	1.91	09/05/2019
Ethyl ether		5.0			47.6	50.00	0	95.1		48.47	1.90	09/05/2019
Ethyl methacrylate		5.0			47.9	50.00	0	95.8		48.10	0.37	09/05/2019
Ethylbenzene		2.0			45.4	50.00	0	90.8		46.76	2.93	09/05/2019
Hexachlorobutadiene		5.0			50.9	50.00	0	101.7		53.50	5.06	09/05/2019
Hexachloroethane		5.0			50.5	50.00	0	100.9		52.58	4.10	09/05/2019
Iodomethane		5.0			48.7	50.00	0	97.4		49.78	2.21	09/05/2019
Isopropylbenzene		2.0			46.0	50.00	0	92.0		47.42	3.02	09/05/2019
m,p-Xylenes		2.0			91.2	100.0	0	91.2		93.86	2.87	09/05/2019
Methacrylonitrile		5.0			47.2	50.00	0	94.4		48.76	3.21	09/05/2019
Methyl Methacrylate		5.0			46.8	50.00	0	93.6		48.11	2.80	09/05/2019
Methyl tert-butyl ether		2.0			47.7	50.00	0	95.5		48.46	1.50	09/05/2019
Methylacrylate		5.0			48.7	50.00	0	97.4		49.89	2.39	09/05/2019
Methylene chloride		10.0			44.4	50.00	0	88.9		45.58	2.51	09/05/2019
Naphthalene		5.0			46.6	50.00	0	93.2		47.06	1.03	09/05/2019
n-Butyl acetate		2.0			46.1	50.00	0	92.2		46.40	0.63	09/05/2019
n-Butylbenzene		2.0			45.5	50.00	0	91.0		47.66	4.64	09/05/2019
n-Heptane		5.0			51.0	50.00	0	101.9		54.37	6.46	09/05/2019
n-Hexane		5.0			49.8	50.00	0	99.5		52.80	5.93	09/05/2019
Nitrobenzene		50.0			438	500.0	0	87.6		454.3	3.63	09/05/2019
n-Propylbenzene		2.0			46.3	50.00	0	92.7		48.00	3.54	09/05/2019
o-Xylene		2.0			45.8	50.00	0	91.6		46.63	1.75	09/05/2019
Pentachloroethane		5.0			50.1	50.00	0	100.2		50.61	1.03	09/05/2019
p-Isopropyltoluene		2.0			46.6	50.00	0	93.2		48.39	3.81	09/05/2019
Propionitrile		10.0			464	500.0	0	92.9		482.4	3.81	09/05/2019
sec-Butylbenzene		2.0			46.8	50.00	0	93.5		48.34	3.30	09/05/2019
Styrene		2.0			46.9	50.00	0	93.8		47.36	0.93	09/05/2019
tert-Butylbenzene		2.0			46.6	50.00	0	93.2		48.54	4.12	09/05/2019
Tetrachloroethene		0.5			45.4	50.00	0	90.9		46.95	3.29	09/05/2019
Tetrahydrofuran		5.0			41.3	50.00	0	82.6		42.38	2.56	09/05/2019
Toluene		2.0			45.2	50.00	0	90.4		46.36	2.49	09/05/2019
trans-1,2-Dichloroethene		2.0			49.3	50.00	0	98.5		51.30	4.06	09/05/2019
trans-1,3-Dichloropropene		2.0			48.4	50.00	0	96.9		48.82	0.78	09/05/2019
trans-1,4-Dichloro-2-butene		2.0			49.6	50.00	0	99.1		51.00	2.86	09/05/2019
Trichloroethene		2.0			46.0	50.00	0	92.0		47.90	4.07	09/05/2019
Trichlorofluoromethane		5.0			48.9	50.00	0	97.8		51.98	6.07	09/05/2019
Vinyl acetate		5.0			48.8	50.00	0	97.5		49.96	2.45	09/05/2019

Quality Control Results

<http://www.teklabinc.com/>
Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 156991 SampType: LCSD		Units µg/L		RPD Limit 40							
		Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Vinyl chloride			2.0		46.6	50.00	0	93.3	49.01	4.98	09/05/2019
Surr: 1,2-Dichloroethane-d4					49.2	50.00		98.3			09/05/2019
Surr: 4-Bromofluorobenzene					50.1	50.00		100.2			09/05/2019
Surr: Dibromofluoromethane					49.7	50.00		99.3			09/05/2019
Surr: Toluene-d8					49.9	50.00		99.8			09/05/2019

Batch 156991 SampType: MS

Batch 156991 SampType: MS		Units µg/L		RPD Limit 40							
		Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1-Dichloroethene			20.0		491	500.0	0	98.3	35.7	136	09/05/2019
Benzene			5.0		461	500.0	13.40	89.4	62.5	121	09/05/2019
Chlorobenzene			20.0		446	500.0	0	89.3	78.6	114	09/05/2019
Ethylbenzene			20.0		467	500.0	0	93.4	74.4	130	09/05/2019
m,p-Xylenes			20.0		458	500.0	0	91.6	70.5	126	09/05/2019
o-Xylene			20.0		452	500.0	0	90.5	71.2	124	09/05/2019
Toluene			20.0		625	500.0	183.1	88.3	69.5	118	09/05/2019
Trichloroethene			20.0		480	500.0	0	96.0	69.4	117	09/05/2019
Surr: 1,2-Dichloroethane-d4					504	500.0		100.8	79.6	118	09/05/2019
Surr: 4-Bromofluorobenzene					500	500.0		100.1	83.9	115	09/05/2019
Surr: Dibromofluoromethane					494	500.0		98.7	84.9	113	09/05/2019
Surr: Toluene-d8					504	500.0		100.8	86.7	112	09/05/2019

Batch 156991 SampType: MSD

Batch 156991 SampType: MSD		Units µg/L		RPD Limit 20							
		Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,1-Dichloroethene			20.0		497	500.0	0	99.5	491.3	1.23	09/05/2019
Benzene			5.0		465	500.0	13.40	90.4	460.6	1.04	09/05/2019
Chlorobenzene			20.0		454	500.0	0	90.8	446.4	1.64	09/05/2019
Ethylbenzene			20.0		474	500.0	0	94.7	467.1	1.38	09/05/2019
m,p-Xylenes			20.0		463	500.0	0	92.6	458.1	1.11	09/05/2019
o-Xylene			20.0		461	500.0	0	92.2	452.4	1.86	09/05/2019
Toluene			20.0		636	500.0	183.1	90.7	624.8	1.86	09/05/2019
Trichloroethene			20.0		481	500.0	0	96.2	479.9	0.27	09/05/2019
Surr: 1,2-Dichloroethane-d4					500	500.0		99.9			09/05/2019
Surr: 4-Bromofluorobenzene					501	500.0		100.2			09/05/2019
Surr: Dibromofluoromethane					492	500.0		98.3			09/05/2019
Surr: Toluene-d8					500	500.0		100.1			09/05/2019

Receiving Check List

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082091

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Carrier: Jordan Evans

Received By: AH

Completed by:

On:

30-Aug-2019


Amber M. Dilallo

Reviewed by:

On:

30-Aug-2019



Elizabeth A. Hurley

Pages to follow:

Chain of custody

1

Extra pages included

0

	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>	Temp °C <input type="checkbox"/>	5.0
Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Type of thermal preservation?	None <input type="checkbox"/>	Ice <input checked="" type="checkbox"/>		Blue Ice <input type="checkbox"/>	Dry Ice <input type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
All samples received within holding time?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Reported field parameters measured:	Field <input type="checkbox"/>	Lab <input checked="" type="checkbox"/>	NA <input type="checkbox"/>		

Sample analyses to be measured in the field and/or within 15 minutes of collection were analyzed in the lab as soon as practicable. These analyses include Chlorine (demand, free and/or residual), Carbon Dioxide, Dissolved Oxygen, Ferrous Iron, pH, and Sulfite.

Container/Temp Blank temperature in compliance?

Yes

No

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water – at least one vial per sample has zero headspace?

Yes

No

No VOA vials

Water - TOX containers have zero headspace?

Yes

No

No TOX containers

Water - pH acceptable upon receipt?

Yes

No

NA

NPDES/CWA TCN interferences checked/treated in the field?

Yes

No

NA

Any No responses must be detailed below or on the COC.

Headspace was present in the volatile vials. Kenny Hemmen was notified of this error via work order summary. - AH/adilallo - 8/30/2019 5:09:43 PM

Samples were filtered and preserved with Sulfuric Acid (69969) for the dissolved parameters upon arrival at the laboratory. - adilallo - 8/30/2019 5:09:53 PM

CHAIN OF CUSTODY

pg. ____ of ____ Work order # 1908291

TEKLAB, INC. 5445 Horseshoe Lake Road - Collinsville, IL 62234 - Phone: (618) 344-1004 - Fax: (618) 344-1005

Client:	Geotechnology, Inc.		
Address:	11816 Lackland Road		
City / State / Zip	St. Louis, MO 63146		
Contact:	Kenny Hemmen	Phone:	(314) 997-7440
E-Mail:	khemmen@geotechnology.com		
Fax:	(314) 997-2067		

Samples on: ICE BLUE ICE NO ICE 5.0 °C ITG 3

Preserved in: LAB FIELD FOR LAB USE ONLY

Lab Notes AH <130/19

H2S in all vials AH 9/30/19

Client Comments:

Are these samples known to be involved in litigation? If yes, a surcharge will apply Yes No

Are these samples known to be hazardous? Yes No

Are there any required reporting limits to be met on the requested analysis? If yes, please provide limits in the comment section. Yes No

Project Name/Number		Sample Collector's Name		# and Type of Containers	MATRIX	INDICATE ANALYSIS REQUESTED						TOC (O)	VOC 8260		
Hayford Bridge J006295.07		Wayne Holtzmann				UNPRES	NaOH	HNO3	H2SO4	HCL	MeOH	NaHSO4	OTHER		
1908291 001	Instant Eluent	8-29-18 8:50	1	2	Aqueous								X		
002	Well 8	8-29-18 9:10	1	2	Groundwater								X		
003	Well 10	8-29-18 9:25	1	2	Special Waste								X		
004	Well 9	8-29-19 9:40	1	2	Sludge								X		
005	MW-C9	8-29-19 11:25	3	16	Soil								X X X X X X X X		12/1/19
006	MW-C10	8-29-19 12:30	3	16	Drinking Water								X X X X X X X X		
007	MW-C12	8-29-19 14:22	3	16									X X X X X X X X		
008	MW-C13	8-29-19 14:52	3	16									X X X X X X X X		

Relinquished By	Date/Time	Received By	Date/Time
Wayne Holtzmann	8-30-19 7:40 am		8/30/19 1305
	8/30/19 1850		8/30/19 1550

The individual signing this agreement on behalf of the client, acknowledges that he/she has read and understands the terms and conditions of this agreement, and that he/she has the authority to sign on behalf of the client. See www.teklabinc.com for terms and conditions.

BottleOrder: 52768



8/30/19

September 10, 2019

Kenny Hemmen
Geotechnology, Inc.
11816 Lackland Road
St. Louis, MO 63146
TEL: (314) 997-7440
FAX: (314) 997-2067



RE: Hayford Bridge J006295.07

WorkOrder: 19090116

Dear Kenny Hemmen:

TEKLAB, INC received 5 samples on 9/3/2019 3:35:00 PM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,



Emily Pohlman
Project Manager
(618)344-1004 ex 44
epohlman@teklabinc.com

Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

This reporting package includes the following:

Cover Letter	1
Report Contents	2
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Laboratory Results	6
Sample Summary	21
Dates Report	22
Quality Control Results	25
Receiving Check List	58
Chain of Custody	Appended

Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Abbr Definition

* Analytes on report marked with an asterisk are not NELAP accredited

CCV Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.

CRQL A Client Requested Quantitation Limit is a reporting limit that varies according to customer request. The CRQL may not be less than the MDL.

DF Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilution factors.

DNI Did not ignite

DUP Laboratory duplicate is a replicate aliquot prepared under the same laboratory conditions and independently analyzed to obtain a measure of precision.

ICV Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.

IDPH IL Dept. of Public Health

LCS Laboratory control sample is a sample matrix, free from the analytes of interest,spiked with verified known amounts of analytes and analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system.

LCSD Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).

MBLK Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.

MDL "The method detection limit is defined as the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results."

MS Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).

MSD Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).

MW Molecular weight

ND Not Detected at the Reporting Limit

NELAP NELAP Accredited

PQL Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions.

RL The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.

RPD Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).

SPK The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.

Surrogate Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.

TIC Tentatively identified compound: Analytes tentatively identified in the sample by using a library search. Only results not in the calibration standard will be reported as tentatively identified compounds. Results for tentatively identified compounds that are not present in the calibration standard, but are assigned a specific chemical name based upon the library search, are calculated using total peak areas from reconstructed ion chromatograms and a response factor of one. The nearest Internal Standard is used for the calculation. The results of any TICs must be considered estimated, and are flagged with a "T". If the estimated result is above the calibration range it is flagged "ET"

TNTC Too numerous to count (> 200 CFU)

Qualifiers

- Unknown hydrocarbon

B - Analyte detected in associated Method Blank

C - RL shown is a Client Requested Quantitation Limit

E - Value above quantitation range

H - Holding times exceeded

I - Associated internal standard was outside method criteria

J - Analyte detected below quantitation limits

M - Manual Integration used to determine area response

ND - Not Detected at the Reporting Limit

R - RPD outside accepted recovery limits

S - Spike Recovery outside recovery limits

T - TIC(Tentatively identified compound)

X - Value exceeds Maximum Contaminant Level



Case Narrative

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Client Project: Hayford Bridge J006295.07

Work Order: 19090116

Report Date: 10-Sep-2019

Cooler Receipt Temp: 4.0 °C

Locations

Collinsville	
Address	5445 Horseshoe Lake Road Collinsville, IL 62234-7425
Phone	(618) 344-1004
Fax	(618) 344-1005
Email	jhriley@teklabinc.com

Collinsville Air	
Address	5445 Horseshoe Lake Road Collinsville, IL 62234-7425
Phone	(618) 344-1004
Fax	(618) 344-1005
Email	EHurley@teklabinc.com

Springfield	
Address	3920 Pintail Dr Springfield, IL 62711-9415
Phone	(217) 698-1004
Fax	(217) 698-1005
Email	KKlostermann@teklabinc.com

Chicago	
Address	1319 Butterfield Rd. Downers Grove, IL 60515
Phone	(630) 324-6855
Fax	
Email	arenner@teklabinc.com

Kansas City	
Address	8421 Nieman Road Lenexa, KS 66214
Phone	(913) 541-1998
Fax	(913) 541-1998
Email	jhriley@teklabinc.com

Accreditations

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2020	Collinsville
Kansas	KDHE	E-10374	NELAP	4/30/2020	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2020	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2020	Collinsville
Oklahoma	ODEQ	9978	NELAP	8/31/2020	Collinsville
Arkansas	ADEQ	88-0966		3/14/2020	Collinsville
Illinois	IDPH	17584		5/31/2019	Collinsville
Indiana	ISDH	C-IL-06		1/31/2020	Collinsville
Kentucky	KDEP	98006		12/31/2019	Collinsville
Kentucky	UST	0073		1/31/2020	Collinsville
Louisiana	LDPH	LA016		12/31/2019	Collinsville
Missouri	MDNR	930		1/31/2022	Collinsville
Missouri	MDNR	00930		5/31/2019	Collinsville
Tennessee	TDEC	04905		1/31/2020	Collinsville

Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19090116-001

Client Sample ID: MW-C14

Matrix: GROUNDWATER

Collection Date: 08/30/2019 9:45

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 353.2 R2.0 (TOTAL)								
Nitrogen, Nitrate (as N)	NELAP	0.250		2.72	mg/L	5	09/04/2019 17:57	R266550
EPA 600 375.2 REV 2.0 1993 (TOTAL)								
Sulfate	NELAP	50		139	mg/L	5	09/05/2019 19:46	R266501
SM-3500-FE D, LABORATORY ANALYZED								
Lab Ferrous Iron	*	0.20		2.9	mg/L	10	09/10/2019 11:42	R266668
STANDARD METHODS 4500-CL E (TOTAL) 1997								
Chloride	NELAP	20		30	mg/L	5	09/05/2019 19:46	R266526
STANDARD METHODS 4500-CO2 C, LABORATORY ANALYZED								
Lab Free Carbon Dioxide as CO2	*	0		15.3	mg/L	1	09/05/2019 15:15	R266622
STANDARD METHODS 5310 C, ORGANIC CARBON								
Dissolved Organic Carbon	NELAP	1.0		1.2	mg/L	1	09/09/2019 17:29	R266658
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		ND	µg/L	1	09/04/2019 12:46	R266452
Ethene	*	10.0		ND	µg/L	1	09/04/2019 12:46	R266452
Methane	*	4.0		ND	µg/L	1	09/04/2019 12:46	R266452
SW-846 3510C,8270C, SEMI-VOLATILE ORGANIC COMPOUNDS								
1,4-Dioxane	*	0.00100		ND	mg/L	1	09/05/2019 15:03	156937
Surr: 2-Fluorobiphenyl	*	21.4-142		82.8	%REC	1	09/05/2019 15:03	156937
Surr: Nitrobenzene-d5	*	15-163		98.4	%REC	1	09/05/2019 15:03	156937
Surr: p-Terphenyl-d14	*	10-173		101.7	%REC	1	09/06/2019 14:54	156937
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
1,1,1-Trichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
1,1,2,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
1,1,2-Trichloro-1,2,2-trifluoroethane	*	5.0		ND	µg/L	1	09/04/2019 18:05	156975
1,1,2-Trichloroethane	NELAP	0.5		ND	µg/L	1	09/04/2019 18:05	156975
1,1-Dichloro-2-propanone	*	30.0		ND	µg/L	1	09/04/2019 18:05	156975
1,1-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
1,1-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
1,1-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
1,2,3-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
1,2,3-Trichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
1,2,3-Trimethylbenzene	*	2.0		ND	µg/L	1	09/04/2019 18:05	156975
1,2,4-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
1,2,4-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
1,2-Dibromo-3-chloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
1,2-Dibromoethane	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
1,2-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
1,2-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
1,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
1,3,5-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
1,3-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
1,3-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
1,4-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
1-Chlorobutane	NELAP	5.0		ND	µg/L	1	09/04/2019 18:05	156975
2,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19090116-001

Client Sample ID: MW-C14

Matrix: GROUNDWATER

Collection Date: 08/30/2019 9:45

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
2-Butanone	NELAP	10.0		ND	µg/L	1	09/04/2019 18:05	156975
2-Chloroethyl vinyl ether	NELAP	5.0		ND	µg/L	1	09/04/2019 18:05	156975
2-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
2-Hexanone	NELAP	10.0		ND	µg/L	1	09/04/2019 18:05	156975
2-Nitropropane	NELAP	10.0		ND	µg/L	1	09/04/2019 18:05	156975
4-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
4-Methyl-2-pentanone	NELAP	10.0		ND	µg/L	1	09/04/2019 18:05	156975
Acetone	NELAP	10	J	5.5	µg/L	1	09/04/2019 18:05	156975
Acetonitrile	NELAP	10.0		ND	µg/L	1	09/04/2019 18:05	156975
Acrolein	NELAP	20.0		ND	µg/L	1	09/04/2019 18:05	156975
Acrylonitrile	NELAP	5.0		ND	µg/L	1	09/04/2019 18:05	156975
Allyl chloride	NELAP	5.0		ND	µg/L	1	09/04/2019 18:05	156975
Benzene	NELAP	0.5		ND	µg/L	1	09/04/2019 18:05	156975
Bromobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
Bromoform	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
Bromomethane	NELAP	5.0		ND	µg/L	1	09/04/2019 18:05	156975
Carbon disulfide	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
Carbon tetrachloride	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
Chlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
Chloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
Chloroform	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
Chloromethane	NELAP	5.0		ND	µg/L	1	09/04/2019 18:05	156975
Chloroprene	NELAP	5.0		ND	µg/L	1	09/04/2019 18:05	156975
cis-1,2-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
cis-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
cis-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
Cyclohexanone	*	20.0		ND	µg/L	1	09/04/2019 18:05	156975
Dibromochloromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
Dibromomethane	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
Dichlorodifluoromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
Ethyl acetate	NELAP	10.0		ND	µg/L	1	09/04/2019 18:05	156975
Ethyl ether	NELAP	5.0		ND	µg/L	1	09/04/2019 18:05	156975
Ethyl methacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 18:05	156975
Ethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
Hexachlorobutadiene	NELAP	5.0		ND	µg/L	1	09/04/2019 18:05	156975
Hexachloroethane	NELAP	5.0		18.6	µg/L	1	09/04/2019 18:05	156975
Iodomethane	NELAP	5.0		ND	µg/L	1	09/04/2019 18:05	156975
Isopropylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
m,p-Xylenes	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
Methacrylonitrile	NELAP	5.0		ND	µg/L	1	09/04/2019 18:05	156975
Methyl Methacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 18:05	156975
Methyl tert-butyl ether	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
Methylacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 18:05	156975
Methylene chloride	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
Naphthalene	NELAP	5.0		ND	µg/L	1	09/04/2019 18:05	156975

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19090116-001

Client Sample ID: MW-C14

Matrix: GROUNDWATER

Collection Date: 08/30/2019 9:45

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
n-Butyl acetate	*	2.0		ND	µg/L	1	09/04/2019 18:05	156975
n-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
n-Heptane	*	5.0		ND	µg/L	1	09/04/2019 18:05	156975
n-Hexane	*	5.0		ND	µg/L	1	09/04/2019 18:05	156975
Nitrobenzene	NELAP	50.0		ND	µg/L	1	09/04/2019 18:05	156975
n-Propylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
o-Xylene	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
Pentachloroethane	NELAP	5.0		ND	µg/L	1	09/04/2019 18:05	156975
p-Isopropyltoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
Propionitrile	NELAP	10.0		ND	µg/L	1	09/04/2019 18:05	156975
sec-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
Styrene	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
tert-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
Tetrachloroethylene	NELAP	0.5		ND	µg/L	1	09/04/2019 18:05	156975
Tetrahydrofuran	NELAP	5.0		ND	µg/L	1	09/04/2019 18:05	156975
Toluene	NELAP	2.0	J	0.2	µg/L	1	09/04/2019 18:05	156975
trans-1,2-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
trans-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
trans-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
Trichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
Trichlorofluoromethane	NELAP	5.0		ND	µg/L	1	09/04/2019 18:05	156975
Vinyl acetate	NELAP	5.0		ND	µg/L	1	09/04/2019 18:05	156975
Vinyl chloride	NELAP	2.0		ND	µg/L	1	09/04/2019 18:05	156975
Surr: 1,2-Dichloroethane-d4	*	79.6-118		99.6	%REC	1	09/04/2019 18:05	156975
Surr: 4-Bromofluorobenzene	*	83.9-115		100.3	%REC	1	09/04/2019 18:05	156975
Surr: Dibromofluoromethane	*	84.9-113		97.7	%REC	1	09/04/2019 18:05	156975
Surr: Toluene-d8	*	86.7-112		100.1	%REC	1	09/04/2019 18:05	156975

Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19090116-002

Client Sample ID: MW-C15

Matrix: GROUNDWATER

Collection Date: 08/30/2019 10:25

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 353.2 R2.0 (TOTAL)								
Nitrogen, Nitrate (as N)	NELAP	0.050	J	0.046	mg/L	1	09/04/2019 18:01	R266550
EPA 600 375.2 REV 2.0 1993 (TOTAL)								
Sulfate	NELAP	10		37	mg/L	1	09/05/2019 19:48	R266501
SM-3500-FE D, LABORATORY ANALYZED								
Lab Ferrous Iron	*	0.40		18	mg/L	20	09/10/2019 12:22	R266668
STANDARD METHODS 4500-CL E (TOTAL) 1997								
Chloride	NELAP	4		29	mg/L	1	09/05/2019 19:49	R266526
STANDARD METHODS 4500-CO2 C, LABORATORY ANALYZED								
Lab Free Carbon Dioxide as CO2	*	0		24.2	mg/L	1	09/04/2019 14:46	R266464
STANDARD METHODS 5310 C, ORGANIC CARBON								
Dissolved Organic Carbon	NELAP	1.0		2.9	mg/L	1	09/09/2019 17:36	R266658
PERMANENT GASES (RSKSOP-175)								
Ethane	*	175		270	µg/L	25	09/04/2019 13:51	R266452
Ethene	*	10.0		45.5	µg/L	1	09/04/2019 12:59	R266452
Methane	*	100		748	µg/L	25	09/04/2019 13:51	R266452
SW-846 3510C,8270C, SEMI-VOLATILE ORGANIC COMPOUNDS								
1,4-Dioxane	*	0.00500		0.00957	mg/L	5	09/06/2019 15:33	156937
Surr: 2-Fluorobiphenyl	*	21.4-142		77.8	%REC	1	09/05/2019 15:41	156937
Surr: Nitrobenzene-d5	*	15-163		93.3	%REC	1	09/05/2019 15:41	156937
Surr: p-Terphenyl-d14	*	10-173		101.8	%REC	1	09/05/2019 15:41	156937
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
1,1,1-Trichloroethane	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
1,1,2,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
1,1,2-Trichloro-1,2,2-trifluoroethane	*	5.0		ND	µg/L	1	09/05/2019 10:51	156991
1,1,2-Trichloroethane	NELAP	0.5		ND	µg/L	1	09/05/2019 10:51	156991
1,1-Dichloro-2-propanone	*	30.0		ND	µg/L	1	09/05/2019 10:51	156991
1,1-Dichloroethane	NELAP	2.0		4.8	µg/L	1	09/05/2019 10:51	156991
1,1-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
1,1-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
1,2,3-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
1,2,3-Trichloropropane	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
1,2,3-Trimethylbenzene	*	2.0		ND	µg/L	1	09/05/2019 10:51	156991
1,2,4-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
1,2,4-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
1,2-Dibromo-3-chloropropane	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
1,2-Dibromoethane	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
1,2-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
1,2-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
1,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
1,3,5-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
1,3-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
1,3-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
1,4-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
1-Chlorobutane	NELAP	5.0		ND	µg/L	1	09/05/2019 10:51	156991
2,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19090116-002

Client Sample ID: MW-C15

Matrix: GROUNDWATER

Collection Date: 08/30/2019 10:25

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
2-Butanone	NELAP	10.0		ND	µg/L	1	09/05/2019 10:51	156991
2-Chloroethyl vinyl ether	NELAP	5.0		ND	µg/L	1	09/05/2019 10:51	156991
2-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
2-Hexanone	NELAP	10.0		ND	µg/L	1	09/05/2019 10:51	156991
2-Nitropropane	NELAP	10.0		ND	µg/L	1	09/05/2019 10:51	156991
4-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
4-Methyl-2-pentanone	NELAP	10.0		ND	µg/L	1	09/05/2019 10:51	156991
Acetone	NELAP	10	J	6.0	µg/L	1	09/05/2019 10:51	156991
Acetonitrile	NELAP	10.0		ND	µg/L	1	09/05/2019 10:51	156991
Acrolein	NELAP	20.0		ND	µg/L	1	09/05/2019 10:51	156991
Acrylonitrile	NELAP	5.0		ND	µg/L	1	09/05/2019 10:51	156991
Allyl chloride	NELAP	5.0		ND	µg/L	1	09/05/2019 10:51	156991
Benzene	NELAP	0.5		10.9	µg/L	1	09/05/2019 10:51	156991
Bromobenzene	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
Bromoform	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
Bromomethane	NELAP	5.0		ND	µg/L	1	09/05/2019 10:51	156991
Carbon disulfide	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
Carbon tetrachloride	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
Chlorobenzene	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
Chloroethane	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
Chloroform	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
Chloromethane	NELAP	5.0		ND	µg/L	1	09/05/2019 10:51	156991
Chloroprene	NELAP	5.0		ND	µg/L	1	09/05/2019 10:51	156991
cis-1,2-Dichloroethene	NELAP	2.0		37.8	µg/L	1	09/05/2019 10:51	156991
cis-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
cis-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
Cyclohexanone	*	20.0		ND	µg/L	1	09/05/2019 10:51	156991
Dibromochloromethane	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
Dibromomethane	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
Dichlorodifluoromethane	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
Ethyl acetate	NELAP	10.0		ND	µg/L	1	09/05/2019 10:51	156991
Ethyl ether	NELAP	5.0		ND	µg/L	1	09/05/2019 10:51	156991
Ethyl methacrylate	NELAP	5.0		ND	µg/L	1	09/05/2019 10:51	156991
Ethylbenzene	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
Hexachlorobutadiene	NELAP	5.0		ND	µg/L	1	09/05/2019 10:51	156991
Hexachloroethane	NELAP	5.0		ND	µg/L	1	09/05/2019 10:51	156991
Iodomethane	NELAP	5.0		ND	µg/L	1	09/05/2019 10:51	156991
Isopropylbenzene	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
m,p-Xylenes	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
Methacrylonitrile	NELAP	5.0		ND	µg/L	1	09/05/2019 10:51	156991
Methyl Methacrylate	NELAP	5.0		ND	µg/L	1	09/05/2019 10:51	156991
Methyl tert-butyl ether	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
Methylacrylate	NELAP	5.0		ND	µg/L	1	09/05/2019 10:51	156991
Methylene chloride	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
Naphthalene	NELAP	5.0		ND	µg/L	1	09/05/2019 10:51	156991

Laboratory Results

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Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19090116-002

Client Sample ID: MW-C15

Matrix: GROUNDWATER

Collection Date: 08/30/2019 10:25

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
n-Butyl acetate	*	2.0		ND	µg/L	1	09/05/2019 10:51	156991
n-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
n-Heptane	*	5.0		ND	µg/L	1	09/05/2019 10:51	156991
n-Hexane	*	5.0		ND	µg/L	1	09/05/2019 10:51	156991
Nitrobenzene	NELAP	50.0		ND	µg/L	1	09/05/2019 10:51	156991
n-Propylbenzene	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
o-Xylene	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
Pentachloroethane	NELAP	5.0		ND	µg/L	1	09/05/2019 10:51	156991
p-Isopropyltoluene	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
Propionitrile	NELAP	10.0		ND	µg/L	1	09/05/2019 10:51	156991
sec-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
Styrene	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
tert-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
Tetrachloroethylene	NELAP	0.5		ND	µg/L	1	09/05/2019 10:51	156991
Tetrahydrofuran	NELAP	5.0		ND	µg/L	1	09/05/2019 10:51	156991
Toluene	NELAP	2.0		16.6	µg/L	1	09/05/2019 10:51	156991
trans-1,2-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
trans-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
trans-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
Trichloroethene	NELAP	2.0		ND	µg/L	1	09/05/2019 10:51	156991
Trichlorofluoromethane	NELAP	5.0		ND	µg/L	1	09/05/2019 10:51	156991
Vinyl acetate	NELAP	5.0		ND	µg/L	1	09/05/2019 10:51	156991
Vinyl chloride	NELAP	2.0		45.9	µg/L	1	09/05/2019 10:51	156991
Surr: 1,2-Dichloroethane-d4	*	79.6-118		100.0	%REC	1	09/05/2019 10:51	156991
Surr: 4-Bromofluorobenzene	*	83.9-115		100.1	%REC	1	09/05/2019 10:51	156991
Surr: Dibromofluoromethane	*	84.9-113		97.9	%REC	1	09/05/2019 10:51	156991
Surr: Toluene-d8	*	86.7-112		99.8	%REC	1	09/05/2019 10:51	156991

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc. **Work Order:** 19090116
Client Project: Hayford Bridge J006295.07 **Report Date:** 10-Sep-2019
Lab ID: 19090116-003 **Client Sample ID:** MW-C3
Matrix: GROUNDWATER **Collection Date:** 08/30/2019 12:40

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 353.2 R2.0 (TOTAL)								
Nitrogen, Nitrate (as N)	NELAP	0.050	J	0.048	mg/L	1	09/04/2019 18:03	R266550
EPA 600 375.2 REV 2.0 1993 (TOTAL)								
Sulfate	NELAP	20	S	43	mg/L	2	09/05/2019 19:51	R266501
Matrix spike did not recover within control limits. Result verified by re-analysis at dilution.								
SM-3500-FE D, LABORATORY ANALYZED								
Lab Ferrous Iron	*	0.40		14	mg/L	20	09/10/2019 12:23	R266668
STANDARD METHODS 4500-CL E (TOTAL) 1997								
Chloride	NELAP	8		28	mg/L	2	09/05/2019 19:51	R266526
STANDARD METHODS 4500-CO2 C, LABORATORY ANALYZED								
Lab Free Carbon Dioxide as CO2	*	0		16.2	mg/L	1	09/04/2019 14:46	R266464
STANDARD METHODS 5310 C, ORGANIC CARBON								
Dissolved Organic Carbon	NELAP	1.0		2.4	mg/L	1	09/09/2019 17:42	R266658
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		ND	µg/L	1	09/04/2019 13:18	R266452
Ethene	*	10.0		ND	µg/L	1	09/04/2019 13:18	R266452
Methane	*	400		1000	µg/L	100	09/04/2019 14:17	R266452
SW-846 3510C,8270C, SEMI-VOLATILE ORGANIC COMPOUNDS								
1,4-Dioxane	*	0.0010	J	0.00063	mg/L	1	09/05/2019 16:19	156937
Surr: 2-Fluorobiphenyl	*	21.4-142		70.8	%REC	1	09/05/2019 16:19	156937
Surr: Nitrobenzene-d5	*	15-163		85.5	%REC	1	09/05/2019 16:19	156937
Surr: p-Terphenyl-d14	*	10-173		91.4	%REC	1	09/05/2019 16:19	156937
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
1,1,1-Trichloroethane	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
1,1,2,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
1,1,2-Trichloro-1,2,2-trifluoroethane	*	5.0		ND	µg/L	1	09/05/2019 11:18	156991
1,1,2-Trichloroethane	NELAP	0.5		ND	µg/L	1	09/05/2019 11:18	156991
1,1-Dichloro-2-propanone	*	30.0		ND	µg/L	1	09/05/2019 11:18	156991
1,1-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
1,1-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
1,1-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
1,2,3-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
1,2,3-Trichloropropane	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
1,2,3-Trimethylbenzene	*	2.0		ND	µg/L	1	09/05/2019 11:18	156991
1,2,4-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
1,2,4-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
1,2-Dibromo-3-chloropropane	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
1,2-Dibromoethane	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
1,2-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
1,2-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
1,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
1,3,5-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
1,3-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
1,3-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
1,4-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
1-Chlorobutane	NELAP	5.0		ND	µg/L	1	09/05/2019 11:18	156991

Laboratory Results

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Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19090116-003

Client Sample ID: MW-C3

Matrix: GROUNDWATER

Collection Date: 08/30/2019 12:40

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
2,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
2-Butanone	NELAP	10.0		ND	µg/L	1	09/05/2019 11:18	156991
2-Chloroethyl vinyl ether	NELAP	5.0		ND	µg/L	1	09/05/2019 11:18	156991
2-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
2-Hexanone	NELAP	10.0		ND	µg/L	1	09/05/2019 11:18	156991
2-Nitropropane	NELAP	10.0		ND	µg/L	1	09/05/2019 11:18	156991
4-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
4-Methyl-2-pentanone	NELAP	10.0		ND	µg/L	1	09/05/2019 11:18	156991
Acetone	NELAP	10	J	5.0	µg/L	1	09/05/2019 11:18	156991
Acetonitrile	NELAP	10.0		ND	µg/L	1	09/05/2019 11:18	156991
Acrolein	NELAP	20.0		ND	µg/L	1	09/05/2019 11:18	156991
Acrylonitrile	NELAP	5.0		ND	µg/L	1	09/05/2019 11:18	156991
Allyl chloride	NELAP	5.0		ND	µg/L	1	09/05/2019 11:18	156991
Benzene	NELAP	0.5		ND	µg/L	1	09/05/2019 11:18	156991
Bromobenzene	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
Bromochloromethane	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
Bromodichloromethane	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
Bromoform	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
Bromomethane	NELAP	5.0		ND	µg/L	1	09/05/2019 11:18	156991
Carbon disulfide	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
Carbon tetrachloride	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
Chlorobenzene	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
Chloroethane	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
Chloroform	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
Chloromethane	NELAP	5.0		ND	µg/L	1	09/05/2019 11:18	156991
Chloroprene	NELAP	5.0		ND	µg/L	1	09/05/2019 11:18	156991
cis-1,2-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
cis-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
cis-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
Cyclohexanone	*	20.0		ND	µg/L	1	09/05/2019 11:18	156991
Dibromochloromethane	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
Dibromomethane	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
Dichlorodifluoromethane	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
Ethyl acetate	NELAP	10.0		ND	µg/L	1	09/05/2019 11:18	156991
Ethyl ether	NELAP	5.0		ND	µg/L	1	09/05/2019 11:18	156991
Ethyl methacrylate	NELAP	5.0		ND	µg/L	1	09/05/2019 11:18	156991
Ethylbenzene	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
Hexachlorobutadiene	NELAP	5.0		ND	µg/L	1	09/05/2019 11:18	156991
Hexachloroethane	NELAP	5.0		ND	µg/L	1	09/05/2019 11:18	156991
Iodomethane	NELAP	5.0		ND	µg/L	1	09/05/2019 11:18	156991
Isopropylbenzene	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
m,p-Xylenes	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
Methacrylonitrile	NELAP	5.0		ND	µg/L	1	09/05/2019 11:18	156991
Methyl Methacrylate	NELAP	5.0		ND	µg/L	1	09/05/2019 11:18	156991
Methyl tert-butyl ether	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
Methylacrylate	NELAP	5.0		ND	µg/L	1	09/05/2019 11:18	156991
Methylene chloride	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991

Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19090116-003

Client Sample ID: MW-C3

Matrix: GROUNDWATER

Collection Date: 08/30/2019 12:40

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
Naphthalene	NELAP	5.0		ND	µg/L	1	09/05/2019 11:18	156991
n-Butyl acetate	*	2.0		ND	µg/L	1	09/05/2019 11:18	156991
n-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
n-Heptane	*	5.0		ND	µg/L	1	09/05/2019 11:18	156991
n-Hexane	*	5.0		ND	µg/L	1	09/05/2019 11:18	156991
Nitrobenzene	NELAP	50.0		ND	µg/L	1	09/05/2019 11:18	156991
n-Propylbenzene	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
o-Xylene	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
Pentachloroethane	NELAP	5.0		ND	µg/L	1	09/05/2019 11:18	156991
p-Isopropyltoluene	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
Propionitrile	NELAP	10.0		ND	µg/L	1	09/05/2019 11:18	156991
sec-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
Styrene	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
tert-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
Tetrachloroethene	NELAP	0.5		ND	µg/L	1	09/05/2019 11:18	156991
Tetrahydrofuran	NELAP	5.0		ND	µg/L	1	09/05/2019 11:18	156991
Toluene	NELAP	2.0		21.7	µg/L	1	09/05/2019 11:18	156991
trans-1,2-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
trans-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
trans-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
Trichloroethene	NELAP	2.0		ND	µg/L	1	09/05/2019 11:18	156991
Trichlorofluoromethane	NELAP	5.0		ND	µg/L	1	09/05/2019 11:18	156991
Vinyl acetate	NELAP	5.0		ND	µg/L	1	09/05/2019 11:18	156991
Vinyl chloride	NELAP	2.0		3.9	µg/L	1	09/05/2019 11:18	156991
Surr: 1,2-Dichloroethane-d4	*	79.6-118		101.0	%REC	1	09/05/2019 11:18	156991
Surr: 4-Bromofluorobenzene	*	83.9-115		101.1	%REC	1	09/05/2019 11:18	156991
Surr: Dibromofluoromethane	*	84.9-113		98.8	%REC	1	09/05/2019 11:18	156991
Surr: Toluene-d8	*	86.7-112		100.3	%REC	1	09/05/2019 11:18	156991

Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19090116-004

Client Sample ID: MW-C4

Matrix: GROUNDWATER

Collection Date: 08/30/2019 13:25

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 353.2 R2.0 (TOTAL)								
Nitrogen, Nitrate (as N)	NELAP	0.050	J	0.042	mg/L	1	09/04/2019 18:06	R266550
EPA 600 375.2 REV 2.0 1993 (TOTAL)								
Sulfate	NELAP	10		24	mg/L	1	09/05/2019 20:28	R266501
SM-3500-FE D, LABORATORY ANALYZED								
Lab Ferrous Iron	*	0.20		7.9	mg/L	10	09/10/2019 11:48	R266668
STANDARD METHODS 4500-CL E (TOTAL) 1997								
Chloride	NELAP	4		18	mg/L	1	09/05/2019 20:29	R266526
STANDARD METHODS 4500-CO2 C, LABORATORY ANALYZED								
Lab Free Carbon Dioxide as CO2	*	0		19.9	mg/L	1	09/05/2019 15:15	R266622
STANDARD METHODS 5310 C, ORGANIC CARBON								
Dissolved Organic Carbon	NELAP	1.0		3.0	mg/L	1	09/09/2019 17:48	R266658
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		ND	µg/L	1	09/04/2019 13:27	R266452
Ethene	*	10.0		ND	µg/L	1	09/04/2019 13:27	R266452
Methane	*	400		1070	µg/L	100	09/04/2019 14:29	R266452
SW-846 3510C,8270C, SEMI-VOLATILE ORGANIC COMPOUNDS								
1,4-Dioxane	*	0.00100		0.00137	mg/L	1	09/05/2019 16:58	156937
Surr: 2-Fluorobiphenyl	*	21.4-142		76.0	%REC	1	09/05/2019 16:58	156937
Surr: Nitrobenzene-d5	*	15-163		87.4	%REC	1	09/05/2019 16:58	156937
Surr: p-Terphenyl-d14	*	10-173		100.9	%REC	1	09/05/2019 16:58	156937
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
1,1,1-Trichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
1,1,2,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
1,1,2-Trichloro-1,2,2-trifluoroethane	*	5.0		ND	µg/L	1	09/04/2019 16:06	156979
1,1,2-Trichloroethane	NELAP	0.5		ND	µg/L	1	09/04/2019 16:06	156979
1,1-Dichloro-2-propanone	*	30.0		ND	µg/L	1	09/04/2019 16:06	156979
1,1-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
1,1-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
1,1-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
1,2,3-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
1,2,3-Trichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
1,2,3-Trimethylbenzene	*	2.0		ND	µg/L	1	09/04/2019 16:06	156979
1,2,4-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
1,2,4-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
1,2-Dibromo-3-chloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
1,2-Dibromoethane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
1,2-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
1,2-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
1,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
1,3,5-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
1,3-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
1,3-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
1,4-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
1-Chlorobutane	NELAP	5.0		ND	µg/L	1	09/04/2019 16:06	156979
2,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19090116-004

Client Sample ID: MW-C4

Matrix: GROUNDWATER

Collection Date: 08/30/2019 13:25

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
2-Butanone	NELAP	10.0		ND	µg/L	1	09/04/2019 16:06	156979
2-Chloroethyl vinyl ether	NELAP	5.0		ND	µg/L	1	09/04/2019 16:06	156979
2-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
2-Hexanone	NELAP	10.0		ND	µg/L	1	09/04/2019 16:06	156979
2-Nitropropane	NELAP	10.0		ND	µg/L	1	09/04/2019 16:06	156979
4-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
4-Methyl-2-pentanone	NELAP	10.0		ND	µg/L	1	09/04/2019 16:06	156979
Acetone	NELAP	10	J	6.4	µg/L	1	09/04/2019 16:06	156979
Acetonitrile	NELAP	10.0		ND	µg/L	1	09/04/2019 16:06	156979
Acrolein	NELAP	20.0		ND	µg/L	1	09/04/2019 16:06	156979
Acrylonitrile	NELAP	5.0		ND	µg/L	1	09/04/2019 16:06	156979
Allyl chloride	NELAP	5.0		ND	µg/L	1	09/04/2019 16:06	156979
Benzene	NELAP	0.5		ND	µg/L	1	09/04/2019 16:06	156979
Bromobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
Bromoform	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
Bromomethane	NELAP	5.0		ND	µg/L	1	09/04/2019 16:06	156979
Carbon disulfide	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
Carbon tetrachloride	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
Chlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
Chloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
Chloroform	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
Chloromethane	NELAP	5.0		ND	µg/L	1	09/04/2019 16:06	156979
Chloroprene	NELAP	5.0		ND	µg/L	1	09/04/2019 16:06	156979
cis-1,2-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
cis-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
cis-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
Cyclohexanone	*	20.0		ND	µg/L	1	09/04/2019 16:06	156979
Dibromochloromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
Dibromomethane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
Dichlorodifluoromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
Ethyl acetate	NELAP	10.0		ND	µg/L	1	09/04/2019 16:06	156979
Ethyl ether	NELAP	5.0		ND	µg/L	1	09/04/2019 16:06	156979
Ethyl methacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 16:06	156979
Ethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
Hexachlorobutadiene	NELAP	5.0		ND	µg/L	1	09/04/2019 16:06	156979
Hexachloroethane	NELAP	5.0		ND	µg/L	1	09/04/2019 16:06	156979
Iodomethane	NELAP	5.0		ND	µg/L	1	09/04/2019 16:06	156979
Isopropylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
m,p-Xylenes	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
Methacrylonitrile	NELAP	5.0		ND	µg/L	1	09/04/2019 16:06	156979
Methyl Methacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 16:06	156979
Methyl tert-butyl ether	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
Methylacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 16:06	156979
Methylene chloride	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
Naphthalene	NELAP	5.0		ND	µg/L	1	09/04/2019 16:06	156979

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19090116-004

Client Sample ID: MW-C4

Matrix: GROUNDWATER

Collection Date: 08/30/2019 13:25

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
n-Butyl acetate	*	2.0		ND	µg/L	1	09/04/2019 16:06	156979
n-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
n-Heptane	*	5.0		ND	µg/L	1	09/04/2019 16:06	156979
n-Hexane	*	5.0		ND	µg/L	1	09/04/2019 16:06	156979
Nitrobenzene	NELAP	50.0		ND	µg/L	1	09/04/2019 16:06	156979
n-Propylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
o-Xylene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
Pentachloroethane	NELAP	5.0		ND	µg/L	1	09/04/2019 16:06	156979
p-Isopropyltoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
Propionitrile	NELAP	10.0		ND	µg/L	1	09/04/2019 16:06	156979
sec-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
Styrene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
tert-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
Tetrachloroethylene	NELAP	0.5		ND	µg/L	1	09/04/2019 16:06	156979
Tetrahydrofuran	NELAP	5.0		ND	µg/L	1	09/04/2019 16:06	156979
Toluene	NELAP	2.0		121	µg/L	1	09/04/2019 16:06	156979
trans-1,2-Dichloroethylene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
trans-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
trans-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
Trichloroethylene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
Trichlorofluoromethane	NELAP	5.0		ND	µg/L	1	09/04/2019 16:06	156979
Vinyl acetate	NELAP	5.0		ND	µg/L	1	09/04/2019 16:06	156979
Vinyl chloride	NELAP	2.0		ND	µg/L	1	09/04/2019 16:06	156979
Surr: 1,2-Dichloroethane-d4	*	79.6-118		96.1	%REC	1	09/04/2019 16:06	156979
Surr: 4-Bromofluorobenzene	*	83.9-115		93.0	%REC	1	09/04/2019 16:06	156979
Surr: Dibromofluoromethane	*	84.9-113		96.5	%REC	1	09/04/2019 16:06	156979
Surr: Toluene-d8	*	86.7-112		100.9	%REC	1	09/04/2019 16:06	156979

Allowable Marginal Exceedance of Bromodichloromethane, Bromoform, Dibromochloromethane and Pentachloroethane in the laboratory control sample is verified per the TNI Standard.

Laboratory Results

<http://www.teklabinc.com/>
Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19090116-005

Client Sample ID: MW-C11

Matrix: GROUNDWATER

Collection Date: 08/30/2019 14:50

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 353.2 R2.0 (TOTAL)								
Nitrogen, Nitrate (as N)	NELAP	0.050		< 0.050	mg/L	1	09/09/2019 17:28	R266637
EPA 600 375.2 REV 2.0 1993 (TOTAL)								
Sulfate	NELAP	20		99	mg/L	2	09/09/2019 13:20	R266614
SM-3500-FE D, LABORATORY ANALYZED								
Lab Ferrous Iron	*	0.20		6.1	mg/L	10	09/10/2019 11:49	R266668
STANDARD METHODS 4500-CL E (TOTAL) 1997								
Chloride	NELAP	4		42	mg/L	1	09/05/2019 20:31	R266526
STANDARD METHODS 4500-CO2 C, LABORATORY ANALYZED								
Lab Free Carbon Dioxide as CO2	*	0		14.0	mg/L	1	09/05/2019 15:15	R266622
STANDARD METHODS 5310 C, ORGANIC CARBON								
Dissolved Organic Carbon	NELAP	1.0		1.9	mg/L	1	09/09/2019 19:11	R266658
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		ND	µg/L	1	09/04/2019 13:39	R266452
Ethene	*	10.0		ND	µg/L	1	09/04/2019 13:39	R266452
Methane	*	40.0		148	µg/L	10	09/04/2019 14:47	R266452
SW-846 3510C,8270C, SEMI-VOLATILE ORGANIC COMPOUNDS								
1,4-Dioxane	*	0.00100		ND	mg/L	1	09/05/2019 17:36	156937
Surr: 2-Fluorobiphenyl	*	21.4-142		68.8	%REC	1	09/05/2019 17:36	156937
Surr: Nitrobenzene-d5	*	15-163		81.2	%REC	1	09/05/2019 17:36	156937
Surr: p-Terphenyl-d14	*	10-173		92.6	%REC	1	09/05/2019 17:36	156937
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
1,1,1-Trichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
1,1,2,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
1,1,2-Trichloro-1,2,2-trifluoroethane	*	5.0		ND	µg/L	1	09/04/2019 16:33	156979
1,1,2-Trichloroethane	NELAP	0.5		ND	µg/L	1	09/04/2019 16:33	156979
1,1-Dichloro-2-propanone	*	30.0		ND	µg/L	1	09/04/2019 16:33	156979
1,1-Dichloroethane	NELAP	2.0	J	1.0	µg/L	1	09/04/2019 16:33	156979
1,1-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
1,1-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
1,2,3-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
1,2,3-Trichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
1,2,3-Trimethylbenzene	*	2.0		ND	µg/L	1	09/04/2019 16:33	156979
1,2,4-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
1,2,4-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
1,2-Dibromo-3-chloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
1,2-Dibromoethane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
1,2-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
1,2-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
1,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
1,3,5-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
1,3-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
1,3-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
1,4-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
1-Chlorobutane	NELAP	5.0		ND	µg/L	1	09/04/2019 16:33	156979
2,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19090116-005

Client Sample ID: MW-C11

Matrix: GROUNDWATER

Collection Date: 08/30/2019 14:50

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
2-Butanone	NELAP	10.0		ND	µg/L	1	09/04/2019 16:33	156979
2-Chloroethyl vinyl ether	NELAP	5.0		ND	µg/L	1	09/04/2019 16:33	156979
2-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
2-Hexanone	NELAP	10.0		ND	µg/L	1	09/04/2019 16:33	156979
2-Nitropropane	NELAP	10.0		ND	µg/L	1	09/04/2019 16:33	156979
4-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
4-Methyl-2-pentanone	NELAP	10.0		ND	µg/L	1	09/04/2019 16:33	156979
Acetone	NELAP	10	J	5.1	µg/L	1	09/04/2019 16:33	156979
Acetonitrile	NELAP	10.0		ND	µg/L	1	09/04/2019 16:33	156979
Acrolein	NELAP	20.0		ND	µg/L	1	09/04/2019 16:33	156979
Acrylonitrile	NELAP	5.0		ND	µg/L	1	09/04/2019 16:33	156979
Allyl chloride	NELAP	5.0		ND	µg/L	1	09/04/2019 16:33	156979
Benzene	NELAP	0.5	J	0.2	µg/L	1	09/04/2019 16:33	156979
Bromobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
Bromoform	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
Bromomethane	NELAP	5.0		ND	µg/L	1	09/04/2019 16:33	156979
Carbon disulfide	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
Carbon tetrachloride	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
Chlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
Chloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
Chloroform	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
Chloromethane	NELAP	5.0		ND	µg/L	1	09/04/2019 16:33	156979
Chloroprene	NELAP	5.0		ND	µg/L	1	09/04/2019 16:33	156979
cis-1,2-Dichloroethene	NELAP	2.0		6.9	µg/L	1	09/04/2019 16:33	156979
cis-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
cis-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
Cyclohexanone	*	20.0		ND	µg/L	1	09/04/2019 16:33	156979
Dibromochloromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
Dibromomethane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
Dichlorodifluoromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
Ethyl acetate	NELAP	10.0		ND	µg/L	1	09/04/2019 16:33	156979
Ethyl ether	NELAP	5.0		ND	µg/L	1	09/04/2019 16:33	156979
Ethyl methacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 16:33	156979
Ethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
Hexachlorobutadiene	NELAP	5.0		ND	µg/L	1	09/04/2019 16:33	156979
Hexachloroethane	NELAP	5.0		ND	µg/L	1	09/04/2019 16:33	156979
Iodomethane	NELAP	5.0		ND	µg/L	1	09/04/2019 16:33	156979
Isopropylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
m,p-Xylenes	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
Methacrylonitrile	NELAP	5.0		ND	µg/L	1	09/04/2019 16:33	156979
Methyl Methacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 16:33	156979
Methyl tert-butyl ether	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
Methylacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 16:33	156979
Methylene chloride	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
Naphthalene	NELAP	5.0		ND	µg/L	1	09/04/2019 16:33	156979

Laboratory Results

<http://www.teklabinc.com/>
Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab ID: 19090116-005

Client Sample ID: MW-C11

Matrix: GROUNDWATER

Collection Date: 08/30/2019 14:50

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
n-Butyl acetate	*	2.0		ND	µg/L	1	09/04/2019 16:33	156979
n-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
n-Heptane	*	5.0		ND	µg/L	1	09/04/2019 16:33	156979
n-Hexane	*	5.0		ND	µg/L	1	09/04/2019 16:33	156979
Nitrobenzene	NELAP	50.0		ND	µg/L	1	09/04/2019 16:33	156979
n-Propylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
o-Xylene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
Pentachloroethane	NELAP	5.0		ND	µg/L	1	09/04/2019 16:33	156979
p-Isopropyltoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
Propionitrile	NELAP	10.0		ND	µg/L	1	09/04/2019 16:33	156979
sec-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
Styrene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
tert-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
Tetrachloroethylene	NELAP	0.5		ND	µg/L	1	09/04/2019 16:33	156979
Tetrahydrofuran	NELAP	5.0		ND	µg/L	1	09/04/2019 16:33	156979
Toluene	NELAP	2.0		14.6	µg/L	1	09/04/2019 16:33	156979
trans-1,2-Dichloroethylene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
trans-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
trans-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
Trichloroethylene	NELAP	2.0		ND	µg/L	1	09/04/2019 16:33	156979
Trichlorofluoromethane	NELAP	5.0		ND	µg/L	1	09/04/2019 16:33	156979
Vinyl acetate	NELAP	5.0		ND	µg/L	1	09/04/2019 16:33	156979
Vinyl chloride	NELAP	2.0		3.0	µg/L	1	09/04/2019 16:33	156979
Surr: 1,2-Dichloroethane-d4	*	79.6-118		90.3	%REC	1	09/04/2019 16:33	156979
Surr: 4-Bromofluorobenzene	*	83.9-115		91.5	%REC	1	09/04/2019 16:33	156979
Surr: Dibromofluoromethane	*	84.9-113		93.6	%REC	1	09/04/2019 16:33	156979
Surr: Toluene-d8	*	86.7-112		97.3	%REC	1	09/04/2019 16:33	156979

Allowable Marginal Exceedance of Bromodichloromethane, Bromoform, Dibromochloromethane and Pentachloroethane in the laboratory control sample is verified per the TNI Standard.



Sample Summary

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Lab Sample ID	Client Sample ID	Matrix	Fractions	Collection Date
19090116-001	MW-C14	Groundwater	7	08/30/2019 9:45
19090116-002	MW-C15	Groundwater	7	08/30/2019 10:25
19090116-003	MW-C3	Groundwater	7	08/30/2019 12:40
19090116-004	MW-C4	Groundwater	7	08/30/2019 13:25
19090116-005	MW-C11	Groundwater	7	08/30/2019 14:50

Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Sample ID	Client Sample ID	Collection Date	Received Date		Prep Date/Time	Analysis Date/Time
			Test Name			
19090116-001A	MW-C14	08/30/2019 9:45	SW-846 3510C,8270C, Semi-Volatile Organic Compounds	09/03/2019 15:35	09/05/2019 7:15	09/05/2019 15:03
			SW-846 3510C,8270C, Semi-Volatile Organic Compounds		09/05/2019 7:15	09/06/2019 14:54
19090116-001B	MW-C14	08/30/2019 9:45	EPA 600 375.2 Rev 2.0 1993 (Total)	09/03/2019 15:35		09/05/2019 19:46
			Standard Method 4500-H B 2000, Laboratory Analyzed			09/04/2019 11:45
			Standard Methods 4500-Cl E (Total) 1997			09/05/2019 19:46
			Standard Methods 4500-CO2 C, Laboratory Analyzed			09/05/2019 15:15
			Standard Methods 4500-NO2 B (Total) 2000			09/04/2019 10:26
19090116-001C	MW-C14	08/30/2019 9:45	EPA 600 353.2 R2.0 (Total)	09/03/2019 15:35		09/04/2019 17:57
19090116-001D	MW-C14	08/30/2019 9:45	Standard Methods 5310 C, Organic Carbon	09/03/2019 15:35		09/09/2019 17:29
19090116-001E	MW-C14	08/30/2019 9:45	SM-3500-Fe D, Laboratory Analyzed	09/03/2019 15:35		09/10/2019 11:42
19090116-001F	MW-C14	08/30/2019 9:45	Permanent Gases (RSKSOP-175)	09/03/2019 15:35		09/04/2019 12:46
19090116-001G	MW-C14	08/30/2019 9:45	SW-846 5030, 8260B, Volatile Organic Compounds by GC/MS	09/03/2019 15:35		09/04/2019 18:05
19090116-002A	MW-C15	08/30/2019 10:25	SW-846 3510C,8270C, Semi-Volatile Organic Compounds	09/03/2019 15:35	09/05/2019 7:15	09/05/2019 15:41
			SW-846 3510C,8270C, Semi-Volatile Organic Compounds		09/05/2019 7:15	09/06/2019 15:33
19090116-002B	MW-C15	08/30/2019 10:25	EPA 600 375.2 Rev 2.0 1993 (Total)	09/03/2019 15:35		09/05/2019 19:48
			Standard Method 4500-H B 2000, Laboratory Analyzed			09/04/2019 11:45
			Standard Methods 4500-Cl E (Total) 1997			09/05/2019 19:49
			Standard Methods 4500-CO2 C, Laboratory Analyzed			09/04/2019 14:46
			Standard Methods 4500-NO2 B (Total) 2000			09/04/2019 10:27
19090116-002C	MW-C15	08/30/2019 10:25	EPA 600 353.2 R2.0 (Total)	09/03/2019 15:35		09/04/2019 18:01
19090116-002D	MW-C15	08/30/2019 10:25	Standard Methods 5310 C, Organic Carbon	09/03/2019 15:35		09/09/2019 17:36
19090116-002E	MW-C15	08/30/2019 10:25	SM-3500-Fe D, Laboratory Analyzed	09/03/2019 15:35		09/10/2019 12:22
19090116-002F	MW-C15	08/30/2019 10:25	Permanent Gases (RSKSOP-175)	09/03/2019 15:35		09/04/2019 12:59

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Sample ID	Client Sample ID	Collection Date	Received Date	Prep Date/Time	Analysis Date/Time
	Test Name				
	Permanent Gases (RSKSOP-175)				09/04/2019 13:51
19090116-002G	MW-C15	08/30/2019 10:25	09/03/2019 15:35		
	SW-846 5030, 8260B, Volatile Organic Compounds by GC/MS				09/05/2019 10:51
19090116-003A	MW-C3	08/30/2019 12:40	09/03/2019 15:35		
	SW-846 3510C,8270C, Semi-Volatile Organic Compounds			09/05/2019 7:15	09/05/2019 16:19
19090116-003B	MW-C3	08/30/2019 12:40	09/03/2019 15:35		
	EPA 600 375.2 Rev 2.0 1993 (Total)				09/05/2019 19:51
	Standard Method 4500-H B 2000, Laboratory Analyzed				09/04/2019 11:45
	Standard Methods 4500-Cl E (Total) 1997				09/05/2019 19:51
	Standard Methods 4500-CO2 C, Laboratory Analyzed				09/04/2019 14:46
	Standard Methods 4500-NO2 B (Total) 2000				09/04/2019 10:27
19090116-003C	MW-C3	08/30/2019 12:40	09/03/2019 15:35		
	EPA 600 353.2 R2.0 (Total)				09/04/2019 18:03
19090116-003D	MW-C3	08/30/2019 12:40	09/03/2019 15:35		
	Standard Methods 5310 C, Organic Carbon				09/09/2019 17:42
19090116-003E	MW-C3	08/30/2019 12:40	09/03/2019 15:35		
	SM-3500-Fe D, Laboratory Analyzed				09/10/2019 12:23
19090116-003F	MW-C3	08/30/2019 12:40	09/03/2019 15:35		
	Permanent Gases (RSKSOP-175)				09/04/2019 13:18
	Permanent Gases (RSKSOP-175)				09/04/2019 14:17
19090116-003G	MW-C3	08/30/2019 12:40	09/03/2019 15:35		
	SW-846 5030, 8260B, Volatile Organic Compounds by GC/MS				09/05/2019 11:18
19090116-004A	MW-C4	08/30/2019 13:25	09/03/2019 15:35		
	SW-846 3510C,8270C, Semi-Volatile Organic Compounds			09/05/2019 7:15	09/05/2019 16:58
19090116-004B	MW-C4	08/30/2019 13:25	09/03/2019 15:35		
	EPA 600 375.2 Rev 2.0 1993 (Total)				09/05/2019 20:28
	Standard Method 4500-H B 2000, Laboratory Analyzed				09/04/2019 11:45
	Standard Methods 4500-Cl E (Total) 1997				09/05/2019 20:29
	Standard Methods 4500-CO2 C, Laboratory Analyzed				09/05/2019 15:15
	Standard Methods 4500-NO2 B (Total) 2000				09/04/2019 10:27
19090116-004C	MW-C4	08/30/2019 13:25	09/03/2019 15:35		
	EPA 600 353.2 R2.0 (Total)				09/04/2019 18:06
19090116-004D	MW-C4	08/30/2019 13:25	09/03/2019 15:35		
	Standard Methods 5310 C, Organic Carbon				09/09/2019 17:48
19090116-004E	MW-C4	08/30/2019 13:25	09/03/2019 15:35		
	SM-3500-Fe D, Laboratory Analyzed				09/10/2019 11:48

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Sample ID	Client Sample ID	Collection Date	Received Date	Prep Date/Time	Analysis Date/Time
		Test Name			
19090116-004F	MW-C4	08/30/2019 13:25	09/03/2019 15:35		
	Permanent Gases (RSKSOP-175)			09/04/2019 13:27	
	Permanent Gases (RSKSOP-175)			09/04/2019 14:29	
19090116-004G	MW-C4	08/30/2019 13:25	09/03/2019 15:35		
	SW-846 5030, 8260B, Volatile Organic Compounds by GC/MS			09/04/2019 16:06	
19090116-005A	MW-C11	08/30/2019 14:50	09/03/2019 15:35		
	SW-846 3510C,8270C, Semi-Volatile Organic Compounds			09/05/2019 7:15	09/05/2019 17:36
19090116-005B	MW-C11	08/30/2019 14:50	09/03/2019 15:35		
	EPA 600 375.2 Rev 2.0 1993 (Total)			09/09/2019 13:20	
	Standard Method 4500-H B 2000, Laboratory Analyzed			09/04/2019 11:45	
	Standard Methods 4500-Cl E (Total) 1997			09/05/2019 20:31	
	Standard Methods 4500-CO2 C, Laboratory Analyzed			09/05/2019 15:15	
	Standard Methods 4500-NO2 B (Total) 2000			09/04/2019 10:28	
19090116-005C	MW-C11	08/30/2019 14:50	09/03/2019 15:35		
	EPA 600 353.2 R2.0 (Total)			09/09/2019 17:28	
19090116-005D	MW-C11	08/30/2019 14:50	09/03/2019 15:35		
	Standard Methods 5310 C, Organic Carbon			09/09/2019 19:11	
19090116-005E	MW-C11	08/30/2019 14:50	09/03/2019 15:35		
	SM-3500-Fe D, Laboratory Analyzed			09/10/2019 11:49	
19090116-005F	MW-C11	08/30/2019 14:50	09/03/2019 15:35		
	Permanent Gases (RSKSOP-175)			09/04/2019 13:39	
	Permanent Gases (RSKSOP-175)			09/04/2019 14:47	
19090116-005G	MW-C11	08/30/2019 14:50	09/03/2019 15:35		
	SW-846 5030, 8260B, Volatile Organic Compounds by GC/MS			09/04/2019 16:33	

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EPA 600 353.2 R2.0 (TOTAL)

Batch	R266550	SampType:	MBLK	Units	mg/L								
SampID:	MBLK											Date Analyzed	
Analyses		RL	Qual			Result	Spike	SPK	Ref Val	%REC			
Nitrogen, Nitrate-Nitrite (as N)		0.050				< 0.050	0.00900C	0	0		-100	100	09/04/2019

Batch R266550 SampType: LCS

Batch	R266550	SampType:	LCS	Units	mg/L								
SampID:	ICV/LCS											Date Analyzed	
Analyses		RL	Qual			Result	Spike	SPK	Ref Val	%REC			
Nitrogen, Nitrate-Nitrite (as N)		1.00				5.35	5.010	0	106.7		90	110	09/04/2019

Batch R266637 SampType: MBLK

Batch	R266637	SampType:	MBLK	Units	mg/L								
SampID:	MBLK											Date Analyzed	
Analyses		RL	Qual			Result	Spike	SPK	Ref Val	%REC			
Nitrogen, Nitrate-Nitrite (as N)		0.050				< 0.050	0.00900C	0	0		-100	100	09/09/2019

Batch R266637 SampType: LCS

Batch	R266637	SampType:	LCS	Units	mg/L								
SampID:	ICV/LCS											Date Analyzed	
Analyses		RL	Qual			Result	Spike	SPK	Ref Val	%REC			
Nitrogen, Nitrate-Nitrite (as N)		1.00				5.35	5.010	0	106.9		90	110	09/09/2019

Batch R266637 SampType: MS

Batch	R266637	SampType:	MS	Units	mg/L								
SampID:	19090116-005CMS											Date Analyzed	
Analyses		RL	Qual			Result	Spike	SPK	Ref Val	%REC			
Nitrogen, Nitrate-Nitrite (as N)		0.050				0.269	0.2500	0.01440	101.8		90	110	09/09/2019

Batch R266637 SampType: MSD

Batch	R266637	SampType:	MSD	Units	mg/L							RPD Limit 10	
SampID:	19090116-005CMSD											Date Analyzed	
Analyses		RL	Qual			Result	Spike	SPK	Ref Val	%REC			
Nitrogen, Nitrate-Nitrite (as N)		0.050				0.266	0.2500	0.01440	100.8		0.2690	0.97	09/09/2019

EPA 600 375.2 REV 2.0 1993 (TOTAL)

Batch	R266501	SampType:	MBLK	Units	mg/L								
SampID:	ICB/MBLK											Date Analyzed	
Analyses		RL	Qual			Result	Spike	SPK	Ref Val	%REC			
Sulfate		10				< 10	7.620	0	0		-100	100	09/05/2019

Batch R266501 SampType: MBLK

Batch	R266501	SampType:	MBLK	Units	mg/Kg								
SampID:	MB-R266501											Date Analyzed	
Analyses		RL	Qual			Result	Spike	SPK	Ref Val	%REC			
Sulfate		100				< 100	76.20	0	0		-100	100	09/05/2019



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EPA 600 375.2 REV 2.0 1993 (TOTAL)

Batch	R266501	SampType:	LCS	Units	mg/L							
SampID:	ICV/LCS											
Analyses		RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed	
Sulfate		10		20	20.00	0	99.7		90	110	09/05/2019	

Batch R266501 SampType: LCS Units mg/Kg

Batch	R266501	SampType:	LCS	Units	mg/Kg							
SampID:	LCS-R266501											
Analyses		RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed	
Sulfate		100		199	200.0	0	99.6		90	110	09/05/2019	

Batch R266501 SampType: MS Units mg/L

Batch	R266501	SampType:	MS	Units	mg/L							
SampID:	19090116-003BMS											
Analyses		RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed	
Sulfate		20	S	58	20.00	42.54	78.4		90	110	09/05/2019	

Batch R266501 SampType: MSD Units mg/L RPD Limit 10

Batch	R266501	SampType:	MSD	Units	mg/L							
SampID:	19090116-003BMSD											
Analyses		RL	Qual	Result	Spike	SPK	Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed	
Sulfate		20	S	60	20.00	42.54	86.3		58.22	2.68	09/05/2019	

Batch R266614 SampType: MBLK Units mg/L

Batch	R266614	SampType:	MBLK	Units	mg/L							
SampID:	ICB/MBLK											
Analyses		RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed	
Sulfate		10		< 10	7.620	0	0		-100	100	09/09/2019	

Batch R266614 SampType: LCS Units mg/L

Batch	R266614	SampType:	LCS	Units	mg/L							
SampID:	ICV/LCS											
Analyses		RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed	
Sulfate		10		20	20.00	0	101.6		90	110	09/09/2019	

SM-3500-FE D, LABORATORY ANALYZED

Batch	R266668	SampType:	MBLK	Units	mg/L							
SampID:	MBLK											
Analyses		RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed	
Lab Ferrous Iron		0.020		< 0.020	0.00800C	0	0		-100	100	09/10/2019	

Batch R266668 SampType: LCS Units mg/L

Batch	R266668	SampType:	LCS	Units	mg/L							
SampID:	LCS											
Analyses		RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed	
Lab Ferrous Iron		0.020		0.52	0.5000	0	104.8		90	110	09/10/2019	



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SM-3500-FE D, LABORATORY ANALYZED

Batch R266668	SampType: MS	Units mg/L							
SamplID: 19090116-001EMS									
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lab Ferrous Iron	0.20		5.6	2.500	2.850	110.4	85	115	09/10/2019

Batch R266668 SampType: MSD Units mg/L RPD Limit 15

Batch R266668	SampType: MSD	Units mg/L							
SamplID: 19090116-001EMSD									
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab Ferrous Iron	0.20		5.6	2.500	2.850	110.4	5.610	0.00	09/10/2019

STANDARD METHOD 4500-H B 2000, LABORATORY ANALYZED

Batch R266437	SampType: LCS	Units							
SamplID: LCS									
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lab pH	1.00		7.00	7.000	0	100.0	99.1	100.8	09/04/2019

Batch R266437 SampType: DUP Units RPD Limit 10

Batch R266437	SampType: DUP	Units							
SamplID: 19090116-001BDUP									
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH	1.00		7.62				7.570	0.66	09/04/2019

Batch R266437 SampType: DUP Units RPD Limit 10

Batch R266437	SampType: DUP	Units							
SamplID: 19090116-002BDUP									
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH	1.00		7.45				7.480	0.40	09/04/2019

Batch R266437 SampType: DUP Units RPD Limit 10

Batch R266437	SampType: DUP	Units							
SamplID: 19090116-003BDUP									
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH	1.00		7.53				7.580	0.66	09/04/2019

Batch R266437 SampType: DUP Units RPD Limit 10

Batch R266437	SampType: DUP	Units							
SamplID: 19090116-004BDUP									
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH	1.00		7.67				7.620	0.65	09/04/2019

Batch R266437 SampType: DUP Units RPD Limit 10

Batch R266437	SampType: DUP	Units							
SamplID: 19090116-005BDUP									
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH	1.00		7.69				7.660	0.39	09/04/2019



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STANDARD METHODS 4500-CL E (TOTAL) 1997

Batch R266526	SampType: MBLK	Units mg/L								
SamplID: ICB/MBLK										
Analyses	Chloride	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
		4		< 4	0.5000	0	0	-100	100	Date Analyzed 09/05/2019

Batch R266526 SampType: LCS

Batch R266526	SampType: LCS	Units mg/L								
SamplID: ICV/LCS										
Analyses	Chloride	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
		4		19	20.00	0	95.0	90	110	Date Analyzed 09/05/2019

Batch R266526 SampType: MS

Batch R266526	SampType: MS	Units mg/L								
SamplID: 19090116-003BMS										
Analyses	Chloride	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
		8		63	40.00	27.74	89.2	85	115	Date Analyzed 09/05/2019

Batch R266526 SampType: MSD

Batch R266526	SampType: MSD	Units mg/L								
SamplID: 19090116-003BMSD										
Analyses	Chloride	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	
		8		63	40.00	27.74	89.2	63.43	0.00	Date Analyzed 09/05/2019

STANDARD METHODS 4500-NO2 B (TOTAL) 2000

Batch R266419	SampType: MBLK	Units mg/L								
SamplID: MBLK										
Analyses	Nitrogen, Nitrite (as N)	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
	0.05			< 0.05	0.02500	0	0	-100	100	Date Analyzed 09/04/2019
	Nitrogen, Nitrite (as N)			< 0.05	0.02500	0	0	-100	100	09/04/2019

Batch R266419 SampType: LCS

Batch R266419	SampType: LCS	Units mg/L								
SamplID: LCS										
Analyses	Nitrogen, Nitrite (as N)	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
	0.25			1.12	1.100	0	102.3	90	110	Date Analyzed 09/04/2019
	Nitrogen, Nitrite (as N)			1.12	1.100	0	102.3	90	110	09/04/2019

Batch R266419 SampType: MS

Batch R266419	SampType: MS	Units mg/L								
SamplID: 19090116-005BMS										
Analyses	Nitrogen, Nitrite (as N)	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
	0.05	H		0.49	0.5000	0.006000	96.8	85	115	Date Analyzed 09/04/2019

Batch R266419 SampType: MSD

Batch R266419	SampType: MSD	Units mg/L								
SamplID: 19090116-005BMSD										
Analyses	Nitrogen, Nitrite (as N)	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	
	0.05	H		0.49	0.5000	0.006000	96.6	0.4900	0.20	Date Analyzed 09/04/2019

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STANDARD METHODS 5310 C, ORGANIC CARBON

Batch R266658 SampType: MBLK Units mg/L

SampID: MB-R266658

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Dissolved Organic Carbon	1.0		< 1.0	0.4500	0	0	0	0	09/09/2019

Batch R266658 SampType: LCS Units mg/L

SampID: LCS-R266658

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Dissolved Organic Carbon	10.0		55.5	52.60	0	105.5	90	110	09/09/2019

Batch R266658 SampType: MS Units mg/L

SampID: 19090116-004DMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Dissolved Organic Carbon	1.0		7.9	5.000	3.020	97.0	85	115	09/09/2019

Batch R266658 SampType: MSD Units mg/L

SampID: 19090116-004DMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Dissolved Organic Carbon	1.0		7.9	5.000	3.020	96.8	7.870	0.13	09/09/2019

PERMANENT GASES (RSKSOP-175)

Batch R266452 SampType: MBLK Units µg/L

SampID: MBLK-090419

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ethane	7.0		ND						09/04/2019
Ethene	10.0		ND						09/04/2019
Methane	4.0		ND						09/04/2019

Batch R266452 SampType: LCS Units µg/L

SampID: LCS-090419

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ethane	7.0		70.9	100.0	0	70.9	25.5	132	09/04/2019
Ethene	10.0		74.2	100.0	0	74.2	23.6	132	09/04/2019
Methane	4.0		68.4	100.0	0	68.4	23.9	132	09/04/2019

Batch R266452 SampType: LCSD Units µg/L

SampID: LCSD-090419

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Ethane	7.0		77.3	100.0	0	77.3	70.87	8.67	09/04/2019
Ethene	10.0		81.2	100.0	0	81.2	74.21	8.95	09/04/2019
Methane	4.0		74.8	100.0	0	74.8	68.43	8.91	09/04/2019

Quality Control Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 3510C,8270C, SEMI-VOLATILE ORGANIC COMPOUNDS

Batch	156937	SampType	MBLK	Units	mg/L								
Analyses				RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,4-Dioxane				0.00100		ND							09/05/2019
Surr: 2-Fluorobiphenyl						0.000627	0.00100C			62.7	30	133	09/05/2019
Surr: Nitrobenzene-d5						0.000785	0.00100C			78.5	39.8	123	09/05/2019
Surr: p-Terphenyl-d14						0.00102	0.00100C			101.7	48.1	144	09/05/2019

Batch 156937 SampType: LCS Units mg/L

Batch	156937	SampType	LCS	Units	mg/L								
Analyses				RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,4-Dioxane				0.00100		0.00152	0.00200C	0		75.9	30	101	09/05/2019
Surr: 2-Fluorobiphenyl						0.000788	0.00100C			78.8	30	133	09/05/2019
Surr: Nitrobenzene-d5						0.000940	0.00100C			94.0	39.8	123	09/05/2019
Surr: p-Terphenyl-d14						0.001113	0.00100C			113.3	48.1	144	09/05/2019

Batch 156937 SampType: LCSD Units mg/L RPD Limit 40

Batch	156937	SampType	LCSD	Units	mg/L								
Analyses				RL	Qual	Result	Spike	SPK	Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,4-Dioxane				0.00100		0.00145	0.00200C	0		72.6	0.001518	4.41	09/05/2019
Surr: 2-Fluorobiphenyl						0.000726	0.00100C			72.6			09/05/2019
Surr: Nitrobenzene-d5						0.000878	0.00100C			87.8			09/05/2019
Surr: p-Terphenyl-d14						0.001111	0.00100C			111.0			09/05/2019

Quality Control Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 156975	SampType: MBLK	Units µg/L	Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
			SampID: MBLK-AE190904A-1									
1,1,1,2-Tetrachloroethane		2.0				ND						09/04/2019
1,1,1-Trichloroethane		2.0				ND						09/04/2019
1,1,2,2-Tetrachloroethane		2.0				ND						09/04/2019
1,1,2-Trichloro-1,2,2-trifluoroethane		5.0				ND						09/04/2019
1,1,2-Trichloroethane		0.5				ND						09/04/2019
1,1-Dichloro-2-propanone		30.0				ND						09/04/2019
1,1-Dichloroethane		2.0				ND						09/04/2019
1,1-Dichloroethene		2.0				ND						09/04/2019
1,1-Dichloropropene		2.0				ND						09/04/2019
1,2,3-Trichlorobenzene		2.0				ND						09/04/2019
1,2,3-Trichloropropane		2.0				ND						09/04/2019
1,2,3-Trimethylbenzene		2.0				ND						09/04/2019
1,2,4-Trichlorobenzene		2.0				ND						09/04/2019
1,2,4-Trimethylbenzene		2.0				ND						09/04/2019
1,2-Dibromo-3-chloropropane		5.0				ND						09/04/2019
1,2-Dibromoethane		2.0				ND						09/04/2019
1,2-Dichlorobenzene		2.0				ND						09/04/2019
1,2-Dichloroethane		2.0				ND						09/04/2019
1,2-Dichloropropane		2.0				ND						09/04/2019
1,3,5-Trimethylbenzene		2.0				ND						09/04/2019
1,3-Dichlorobenzene		2.0				ND						09/04/2019
1,3-Dichloropropane		2.0				ND						09/04/2019
1,4-Dichlorobenzene		2.0				ND						09/04/2019
1-Chlorobutane		5.0				ND						09/04/2019
2,2-Dichloropropane		2.0				ND						09/04/2019
2-Butanone		10.0				ND						09/04/2019
2-Chloroethyl vinyl ether		5.0				ND						09/04/2019
2-Chlorotoluene		2.0				ND						09/04/2019
2-Hexanone		10.0				ND						09/04/2019
2-Nitropropane		10.0				ND						09/04/2019
4-Chlorotoluene		2.0				ND						09/04/2019
4-Methyl-2-pentanone		10.0				ND						09/04/2019
Acetone		10.0				ND						09/04/2019
Acetonitrile		10.0				ND						09/04/2019
Acrolein		20.0				ND						09/04/2019
Acrylonitrile		5.0				ND						09/04/2019
Allyl chloride		5.0				ND						09/04/2019
Benzene		0.5				ND						09/04/2019
Bromobenzene		2.0				ND						09/04/2019
Bromochloromethane		2.0				ND						09/04/2019
Bromodichloromethane		2.0				ND						09/04/2019
Bromoform		2.0				ND						09/04/2019
Bromomethane		5.0				ND						09/04/2019
Carbon disulfide		2.0				ND						09/04/2019
Carbon tetrachloride		2.0				ND						09/04/2019
Chlorobenzene		2.0				ND						09/04/2019
Chloroethane		2.0				ND						09/04/2019

Quality Control Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 156975	SampType: MBLK	Units µg/L	Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
			SampID: MBLK-AE190904A-1									
Chloroform		2.0				ND						09/04/2019
Chloromethane		5.0				ND						09/04/2019
Chloroprene		5.0				ND						09/04/2019
cis-1,2-Dichloroethene		2.0				ND						09/04/2019
cis-1,3-Dichloropropene		2.0				ND						09/04/2019
cis-1,4-Dichloro-2-butene		2.0				ND						09/04/2019
Cyclohexanone		20.0				ND						09/04/2019
Dibromochloromethane		2.0				ND						09/04/2019
Dibromomethane		2.0				ND						09/04/2019
Dichlorodifluoromethane		2.0				ND						09/04/2019
Ethyl acetate		10.0				ND						09/04/2019
Ethyl ether		5.0				ND						09/04/2019
Ethyl methacrylate		5.0				ND						09/04/2019
Ethylbenzene		2.0				ND						09/04/2019
Hexachlorobutadiene		5.0				ND						09/04/2019
Hexachloroethane		5.0				ND						09/04/2019
Iodomethane		5.0				ND						09/04/2019
Isopropylbenzene		2.0				ND						09/04/2019
m,p-Xylenes		2.0				ND						09/04/2019
Methacrylonitrile		5.0				ND						09/04/2019
Methyl Methacrylate		5.0				ND						09/04/2019
Methyl tert-butyl ether		2.0				ND						09/04/2019
Methylacrylate		5.0				ND						09/04/2019
Methylene chloride		10.0				ND						09/04/2019
Naphthalene		5.0				ND						09/04/2019
n-Butyl acetate		2.0				ND						09/04/2019
n-Butylbenzene		2.0				ND						09/04/2019
n-Heptane		5.0				ND						09/04/2019
n-Hexane		5.0				ND						09/04/2019
Nitrobenzene		50.0				ND						09/04/2019
n-Propylbenzene		2.0				ND						09/04/2019
o-Xylene		2.0				ND						09/04/2019
Pentachloroethane		5.0				ND						09/04/2019
p-Isopropyltoluene		2.0				ND						09/04/2019
Propionitrile		10.0				ND						09/04/2019
sec-Butylbenzene		2.0				ND						09/04/2019
Styrene		2.0				ND						09/04/2019
tert-Butylbenzene		2.0				ND						09/04/2019
Tetrachloroethene		0.5				ND						09/04/2019
Tetrahydrofuran		5.0				ND						09/04/2019
Toluene		2.0				ND						09/04/2019
trans-1,2-Dichloroethene		2.0				ND						09/04/2019
trans-1,3-Dichloropropene		2.0				ND						09/04/2019
trans-1,4-Dichloro-2-butene		2.0				ND						09/04/2019
Trichloroethene		2.0				ND						09/04/2019
Trichlorofluoromethane		5.0				ND						09/04/2019
Vinyl acetate		5.0				ND						09/04/2019



Quality Control Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch	156975	SampType	MBLK	Units	µg/L							
SampID: MBLK-AE190904A-1												
Analyses		RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed	
Vinyl chloride		2.0		ND							09/04/2019	
Surr: 1,2-Dichloroethane-d4				49.4	50.00		98.9		79.6	118	09/04/2019	
Surr: 4-Bromofluorobenzene				50.8	50.00		101.7		83.9	115	09/04/2019	
Surr: Dibromofluoromethane				48.9	50.00		97.9		84.9	113	09/04/2019	
Surr: Toluene-d8				50.4	50.00		100.8		86.7	112	09/04/2019	

Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 156975	SampType: LCS	Units µg/L								
SampID: LCS-AE190904A-1										Date Analyzed
Analyses	RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	
1,1,1,2-Tetrachloroethane	2.0		49.0	50.00	0	98.0		83.4	118	09/04/2019
1,1,1-Trichloroethane	2.0		51.8	50.00	0	103.6		79.1	123	09/04/2019
1,1,2,2-Tetrachloroethane	2.0		49.0	50.00	0	97.9		70.7	121	09/04/2019
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0		51.3	50.00	0	102.6		75.2	133	09/04/2019
1,1,2-Trichloroethane	0.5		48.6	50.00	0	97.3		79.8	117	09/04/2019
1,1-Dichloro-2-propanone	30.0		125	125.0	0	100.3		63.8	122	09/04/2019
1,1-Dichloroethane	2.0		51.0	50.00	0	101.9		75.1	122	09/04/2019
1,1-Dichloroethene	2.0		51.6	50.00	0	103.3		68.3	121	09/04/2019
1,1-Dichloropropene	2.0		49.4	50.00	0	98.8		76.7	122	09/04/2019
1,2,3-Trichlorobenzene	2.0		50.6	50.00	0	101.1		77.1	130	09/04/2019
1,2,3-Trichloropropane	2.0		47.9	50.00	0	95.8		70.6	114	09/04/2019
1,2,3-Trimethylbenzene	2.0		49.9	50.00	0	99.8		77.4	117	09/04/2019
1,2,4-Trichlorobenzene	2.0		50.7	50.00	0	101.4		79.6	128	09/04/2019
1,2,4-Trimethylbenzene	2.0		49.4	50.00	0	98.8		78.9	117	09/04/2019
1,2-Dibromo-3-chloropropane	5.0		50.0	50.00	0	100.1		68.1	123	09/04/2019
1,2-Dibromoethane	2.0		47.6	50.00	0	95.2		82.9	114	09/04/2019
1,2-Dichlorobenzene	2.0		47.5	50.00	0	94.9		75.2	120	09/04/2019
1,2-Dichloroethane	2.0		46.8	50.00	0	93.6		76.9	117	09/04/2019
1,2-Dichloropropane	2.0		47.5	50.00	0	95.0		76.4	121	09/04/2019
1,3,5-Trimethylbenzene	2.0		49.5	50.00	0	99.0		79.8	118	09/04/2019
1,3-Dichlorobenzene	2.0		47.9	50.00	0	95.7		80.5	119	09/04/2019
1,3-Dichloropropane	2.0		46.8	50.00	0	93.5		77.5	113	09/04/2019
1,4-Dichlorobenzene	2.0		47.4	50.00	0	94.7		80.2	115	09/04/2019
1-Chlorobutane	5.0		51.7	50.00	0	103.3		75.1	123	09/04/2019
2,2-Dichloropropane	2.0		54.2	50.00	0	108.4		62.4	151	09/04/2019
2-Butanone	10.0		117	125.0	0	93.7		65.7	120	09/04/2019
2-Chloroethyl vinyl ether	5.0		46.7	50.00	0	93.4		31.5	159	09/04/2019
2-Chlorotoluene	2.0		49.0	50.00	0	98.0		76	117	09/04/2019
2-Hexanone	10.0		116	125.0	0	92.9		65.1	121	09/04/2019
2-Nitropropane	10.0		488	500.0	0	97.6		70.5	133	09/04/2019
4-Chlorotoluene	2.0		48.9	50.00	0	97.9		77	117	09/04/2019
4-Methyl-2-pentanone	10.0		117	125.0	0	93.3		69.6	117	09/04/2019
Acetone	10.0		113	125.0	0	90.1		47.5	123	09/04/2019
Acetonitrile	10.0		465	500.0	0	92.9		56	136	09/04/2019
Acrolein	20.0		480	500.0	0	96.1		27	164	09/04/2019
Acrylonitrile	5.0		47.9	50.00	0	95.7		74.8	127	09/04/2019
Allyl chloride	5.0		52.0	50.00	0	104.1		66.3	134	09/04/2019
Benzene	0.5		46.8	50.00	0	93.7		75.8	121	09/04/2019
Bromobenzene	2.0		48.5	50.00	0	97.0		72.7	119	09/04/2019
Bromochloromethane	2.0		46.4	50.00	0	92.8		69	123	09/04/2019
Bromodichloromethane	2.0		49.7	50.00	0	99.4		80.8	128	09/04/2019
Bromoform	2.0		49.6	50.00	0	99.2		85.5	128	09/04/2019
Bromomethane	5.0		56.3	50.00	0	112.5		-36.7	277	09/04/2019
Carbon disulfide	2.0		48.3	50.00	0	96.5		64.9	133	09/04/2019
Carbon tetrachloride	2.0		51.2	50.00	0	102.5		79.5	129	09/04/2019
Chlorobenzene	2.0		47.7	50.00	0	95.4		82.1	113	09/04/2019
Chloroethane	2.0		51.8	50.00	0	103.7		43.9	138	09/04/2019

Quality Control Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 156975	SampType: LCS	Units µg/L							
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloroform	2.0		48.7	50.00	0	97.3	80.1	122	09/04/2019
Chloromethane	5.0		47.4	50.00	0	94.9	50.8	131	09/04/2019
Chloroprene	5.0		50.5	50.00	0	100.9	74.4	123	09/04/2019
cis-1,2-Dichloroethene	2.0		49.0	50.00	0	98.1	78.6	119	09/04/2019
cis-1,3-Dichloropropene	2.0		49.4	50.00	0	98.7	79	129	09/04/2019
cis-1,4-Dichloro-2-butene	2.0		52.2	50.00	0	104.4	59.7	125	09/04/2019
Cyclohexanone	20.0		437	500.0	0	87.3	15.1	162	09/04/2019
Dibromochloromethane	2.0		49.6	50.00	0	99.2	88.1	123	09/04/2019
Dibromomethane	2.0		46.9	50.00	0	93.9	75.3	120	09/04/2019
Dichlorodifluoromethane	2.0		54.6	50.00	0	109.2	35.7	155	09/04/2019
Ethyl acetate	10.0		44.5	50.00	0	89.0	66.6	119	09/04/2019
Ethyl ether	5.0		47.8	50.00	0	95.5	74.4	120	09/04/2019
Ethyl methacrylate	5.0		48.4	50.00	0	96.8	80.6	123	09/04/2019
Ethylbenzene	2.0		48.1	50.00	0	96.2	80.7	114	09/04/2019
Hexachlorobutadiene	5.0		54.5	50.00	0	109.0	68.2	141	09/04/2019
Hexachloroethane	5.0		54.7	50.00	0	109.4	69.4	125	09/04/2019
Iodomethane	5.0		52.1	50.00	0	104.1	-19.1	196	09/04/2019
Isopropylbenzene	2.0		48.8	50.00	0	97.6	81.3	116	09/04/2019
m,p-Xylenes	2.0		96.6	100.0	0	96.6	80.5	113	09/04/2019
Methacrylonitrile	5.0		48.0	50.00	0	96.0	75.3	122	09/04/2019
Methyl Methacrylate	5.0		47.4	50.00	0	94.8	71.9	121	09/04/2019
Methyl tert-butyl ether	2.0		48.5	50.00	0	97.1	79.5	121	09/04/2019
Methylacrylate	5.0		49.1	50.00	0	98.2	71.2	129	09/04/2019
Methylene chloride	10.0		45.4	50.00	0	90.9	76.2	119	09/04/2019
Naphthalene	5.0		48.0	50.00	0	95.9	76.1	129	09/04/2019
n-Butyl acetate	2.0		46.4	50.00	0	92.7	62.9	121	09/04/2019
n-Butylbenzene	2.0		49.0	50.00	0	98.0	71.6	122	09/04/2019
n-Heptane	5.0		54.5	50.00	0	109.1	55.1	130	09/04/2019
n-Hexane	5.0		54.6	50.00	0	109.2	61.9	131	09/04/2019
Nitrobenzene	50.0		468	500.0	0	93.6	32.2	151	09/04/2019
n-Propylbenzene	2.0		50.0	50.00	0	99.9	76	120	09/04/2019
o-Xylene	2.0		48.0	50.00	0	96.0	79.7	112	09/04/2019
Pentachloroethane	5.0		52.2	50.00	0	104.4	78.3	128	09/04/2019
p-Isopropyltoluene	2.0		50.0	50.00	0	100.0	76.2	122	09/04/2019
Propionitrile	10.0		474	500.0	0	94.8	67.8	125	09/04/2019
sec-Butylbenzene	2.0		50.4	50.00	0	100.9	76.6	119	09/04/2019
Styrene	2.0		48.6	50.00	0	97.2	82.8	116	09/04/2019
tert-Butylbenzene	2.0		50.2	50.00	0	100.3	74.7	117	09/04/2019
Tetrachloroethene	0.5		48.3	50.00	0	96.7	80.6	122	09/04/2019
Tetrahydrofuran	5.0		43.1	50.00	0	86.2	65.4	116	09/04/2019
Toluene	2.0		47.6	50.00	0	95.2	78.3	112	09/04/2019
trans-1,2-Dichloroethene	2.0		52.2	50.00	0	104.3	73.5	124	09/04/2019
trans-1,3-Dichloropropene	2.0		49.0	50.00	0	97.9	83.4	124	09/04/2019
trans-1,4-Dichloro-2-butene	2.0		53.1	50.00	0	106.3	58.9	132	09/04/2019
Trichloroethene	2.0		48.9	50.00	0	97.9	74.3	125	09/04/2019
Trichlorofluoromethane	5.0		52.5	50.00	0	104.9	71.5	136	09/04/2019
Vinyl acetate	5.0		49.4	50.00	0	98.9	65.9	136	09/04/2019



Quality Control Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch	156975	SampType:	LCS	Units	µg/L							
SampID: LCS-AE190904A-1												
Analyses		RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed	
Vinyl chloride		2.0		50.7	50.00	0	101.5	55.8	135		09/04/2019	
Surr: 1,2-Dichloroethane-d4				49.0	50.00		97.9	79.6	118		09/04/2019	
Surr: 4-Bromofluorobenzene				50.5	50.00		100.9	83.9	115		09/04/2019	
Surr: Dibromofluoromethane				49.5	50.00		99.1	84.9	113		09/04/2019	
Surr: Toluene-d8				50.0	50.00		100.0	86.7	112		09/04/2019	

Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch	156975	SampType	LCSD	Units	µg/L	RPD Limit 40						Date Analyzed	
SampID: LCSD-AE190904A-1													
Analyses		RL	Qual			Result	Spike	SPK	Ref Val	%REC	RPD	Ref Val	%RPD
1,1,1,2-Tetrachloroethane		2.0				48.9	50.00	0	97.8		48.98	0.12	09/04/2019
1,1,1-Trichloroethane		2.0				51.6	50.00	0	103.2		51.80	0.37	09/04/2019
1,1,2,2-Tetrachloroethane		2.0				48.8	50.00	0	97.6		48.96	0.35	09/04/2019
1,1,2-Trichloro-1,2,2-trifluoroethane		5.0				51.0	50.00	0	101.9		51.32	0.70	09/04/2019
1,1,2-Trichloroethane		0.5				48.7	50.00	0	97.4		48.64	0.12	09/04/2019
1,1-Dichloro-2-propanone		30.0				123	125.0	0	98.4		125.4	1.87	09/04/2019
1,1-Dichloroethane		2.0				50.4	50.00	0	100.8		50.97	1.12	09/04/2019
1,1-Dichloroethene		2.0				51.3	50.00	0	102.6		51.63	0.66	09/04/2019
1,1-Dichloropropene		2.0				49.7	50.00	0	99.4		49.39	0.63	09/04/2019
1,2,3-Trichlorobenzene		2.0				50.3	50.00	0	100.5		50.55	0.56	09/04/2019
1,2,3-Trichloropropane		2.0				48.2	50.00	0	96.5		47.92	0.69	09/04/2019
1,2,3-Trimethylbenzene		2.0				49.7	50.00	0	99.4		49.90	0.42	09/04/2019
1,2,4-Trichlorobenzene		2.0				50.1	50.00	0	100.3		50.70	1.13	09/04/2019
1,2,4-Trimethylbenzene		2.0				48.9	50.00	0	97.8		49.39	1.04	09/04/2019
1,2-Dibromo-3-chloropropane		5.0				50.7	50.00	0	101.4		50.05	1.25	09/04/2019
1,2-Dibromoethane		2.0				47.0	50.00	0	94.0		47.59	1.20	09/04/2019
1,2-Dichlorobenzene		2.0				47.5	50.00	0	95.0		47.46	0.04	09/04/2019
1,2-Dichloroethane		2.0				46.8	50.00	0	93.7		46.82	0.04	09/04/2019
1,2-Dichloropropane		2.0				47.1	50.00	0	94.2		47.52	0.91	09/04/2019
1,3,5-Trimethylbenzene		2.0				49.7	50.00	0	99.4		49.48	0.46	09/04/2019
1,3-Dichlorobenzene		2.0				47.8	50.00	0	95.5		47.87	0.21	09/04/2019
1,3-Dichloropropane		2.0				46.2	50.00	0	92.3		46.75	1.29	09/04/2019
1,4-Dichlorobenzene		2.0				47.2	50.00	0	94.4		47.36	0.30	09/04/2019
1-Chlorobutane		5.0				51.6	50.00	0	103.2		51.66	0.10	09/04/2019
2,2-Dichloropropane		2.0				53.3	50.00	0	106.7		54.21	1.64	09/04/2019
2-Butanone		10.0				116	125.0	0	93.0		117.2	0.80	09/04/2019
2-Chloroethyl vinyl ether		5.0				47.7	50.00	0	95.4		46.71	2.08	09/04/2019
2-Chlorotoluene		2.0				49.1	50.00	0	98.2		49.01	0.22	09/04/2019
2-Hexanone		10.0				115	125.0	0	92.4		116.1	0.55	09/04/2019
2-Nitropropane		10.0				488	500.0	0	97.5		488.2	0.13	09/04/2019
4-Chlorotoluene		2.0				48.8	50.00	0	97.5		48.94	0.35	09/04/2019
4-Methyl-2-pentanone		10.0				117	125.0	0	93.4		116.7	0.13	09/04/2019
Acetone		10.0				109	125.0	0	87.4		112.7	3.06	09/04/2019
Acetonitrile		10.0				462	500.0	0	92.4		464.7	0.62	09/04/2019
Acrolein		20.0				485	500.0	0	97.0		480.3	1.02	09/04/2019
Acrylonitrile		5.0				48.0	50.00	0	96.0		47.86	0.33	09/04/2019
Allyl chloride		5.0				50.4	50.00	0	100.9		52.05	3.12	09/04/2019
Benzene		0.5				46.7	50.00	0	93.4		46.84	0.26	09/04/2019
Bromobenzene		2.0				48.6	50.00	0	97.1		48.49	0.12	09/04/2019
Bromochloromethane		2.0				45.9	50.00	0	91.9		46.42	1.06	09/04/2019
Bromodichloromethane		2.0				49.2	50.00	0	98.3		49.69	1.05	09/04/2019
Bromoform		2.0				49.3	50.00	0	98.6		49.59	0.61	09/04/2019
Bromomethane		5.0				56.7	50.00	0	113.4		56.27	0.74	09/04/2019
Carbon disulfide		2.0				48.0	50.00	0	95.9		48.27	0.64	09/04/2019
Carbon tetrachloride		2.0				51.4	50.00	0	102.8		51.25	0.29	09/04/2019
Chlorobenzene		2.0				47.5	50.00	0	95.1		47.71	0.38	09/04/2019
Chloroethane		2.0				52.1	50.00	0	104.3		51.85	0.56	09/04/2019

Quality Control Results

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Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch	156975	SampType	LCSD	Units	µg/L	RPD Limit 40									Date Analyzed
				Sample ID:	LCSD-AE190904A-1	Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	
Chloroform				2.0		48.7	50.00	0	97.4		48.66		0.10		09/04/2019
Chloromethane				5.0		47.6	50.00	0	95.2		47.44		0.34		09/04/2019
Chloroprene				5.0		50.3	50.00	0	100.6		50.47		0.36		09/04/2019
cis-1,2-Dichloroethene				2.0		48.8	50.00	0	97.5		49.03		0.57		09/04/2019
cis-1,3-Dichloropropene				2.0		48.9	50.00	0	97.8		49.35		0.94		09/04/2019
cis-1,4-Dichloro-2-butene				2.0		51.4	50.00	0	102.7		52.21		1.62		09/04/2019
Cyclohexanone				20.0		440	500.0	0	88.0		436.6		0.83		09/04/2019
Dibromochloromethane				2.0		49.0	50.00	0	98.0		49.59		1.18		09/04/2019
Dibromomethane				2.0		47.0	50.00	0	93.9		46.94		0.04		09/04/2019
Dichlorodifluoromethane				2.0		54.0	50.00	0	108.1		54.59		1.01		09/04/2019
Ethyl acetate				10.0		45.1	50.00	0	90.2		44.50		1.32		09/04/2019
Ethyl ether				5.0		47.5	50.00	0	95.0		47.75		0.52		09/04/2019
Ethyl methacrylate				5.0		48.2	50.00	0	96.4		48.39		0.35		09/04/2019
Ethylbenzene				2.0		48.0	50.00	0	96.1		48.10		0.12		09/04/2019
Hexachlorobutadiene				5.0		54.4	50.00	0	108.7		54.52		0.31		09/04/2019
Hexachloroethane				5.0		54.5	50.00	0	108.9		54.68		0.38		09/04/2019
Iodomethane				5.0		52.0	50.00	0	103.9		52.06		0.17		09/04/2019
Isopropylbenzene				2.0		48.6	50.00	0	97.2		48.82		0.41		09/04/2019
m,p-Xylenes				2.0		96.2	100.0	0	96.2		96.59		0.35		09/04/2019
Methacrylonitrile				5.0		48.0	50.00	0	95.9		47.99		0.06		09/04/2019
Methyl Methacrylate				5.0		47.2	50.00	0	94.3		47.42		0.57		09/04/2019
Methyl tert-butyl ether				2.0		48.3	50.00	0	96.6		48.54		0.54		09/04/2019
Methylacrylate				5.0		49.2	50.00	0	98.5		49.10		0.26		09/04/2019
Methylene chloride				10.0		45.5	50.00	0	91.1		45.44		0.20		09/04/2019
Naphthalene				5.0		47.7	50.00	0	95.4		47.97		0.54		09/04/2019
n-Butyl acetate				2.0		46.4	50.00	0	92.8		46.35		0.13		09/04/2019
n-Butylbenzene				2.0		49.2	50.00	0	98.5		48.98		0.55		09/04/2019
n-Heptane				5.0		54.7	50.00	0	109.3		54.54		0.24		09/04/2019
n-Hexane				5.0		54.4	50.00	0	108.8		54.60		0.35		09/04/2019
Nitrobenzene				50.0		473	500.0	0	94.6		468.0		1.09		09/04/2019
n-Propylbenzene				2.0		49.9	50.00	0	99.8		49.97		0.10		09/04/2019
o-Xylene				2.0		47.7	50.00	0	95.4		48.02		0.65		09/04/2019
Pentachloroethane				5.0		51.9	50.00	0	103.8		52.18		0.52		09/04/2019
p-Isopropyltoluene				2.0		50.0	50.00	0	100.0		49.99		0.06		09/04/2019
Propionitrile				10.0		477	500.0	0	95.4		474.2		0.56		09/04/2019
sec-Butylbenzene				2.0		50.4	50.00	0	100.7		50.43		0.12		09/04/2019
Styrene				2.0		48.3	50.00	0	96.6		48.62		0.62		09/04/2019
tert-Butylbenzene				2.0		50.3	50.00	0	100.6		50.16		0.30		09/04/2019
Tetrachloroethene				0.5		48.6	50.00	0	97.1		48.33		0.45		09/04/2019
Tetrahydrofuran				5.0		42.3	50.00	0	84.6		43.11		1.92		09/04/2019
Toluene				2.0		47.3	50.00	0	94.7		47.61		0.57		09/04/2019
trans-1,2-Dichloroethene				2.0		52.3	50.00	0	104.6		52.16		0.29		09/04/2019
trans-1,3-Dichloropropene				2.0		48.7	50.00	0	97.4		48.97		0.57		09/04/2019
trans-1,4-Dichloro-2-butene				2.0		52.9	50.00	0	105.9		53.13		0.38		09/04/2019
Trichloroethene				2.0		48.8	50.00	0	97.5		48.93		0.33		09/04/2019
Trichlorofluoromethane				5.0		52.9	50.00	0	105.8		52.47		0.82		09/04/2019
Vinyl acetate				5.0		49.5	50.00	0	99.0		49.44		0.16		09/04/2019



Quality Control Results

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Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch	156975	SampType	LCSD	Units	µg/L	RPD Limit 40						
SampID: LCSD-AE190904A-1								Date Analyzed				
Analyses		RL	Qual	Result	Spike	SPK	Ref Val	%REC	RPD	Ref Val	%RPD	Date Analyzed
Vinyl chloride		2.0		50.7	50.00	0	101.4		50.73	0.06		09/04/2019
Surr: 1,2-Dichloroethane-d4				48.7	50.00		97.4					09/04/2019
Surr: 4-Bromofluorobenzene				50.4	50.00		100.8					09/04/2019
Surr: Dibromofluoromethane				49.9	50.00		99.8					09/04/2019
Surr: Toluene-d8				49.7	50.00		99.4					09/04/2019

Quality Control Results

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Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 156979	SampType: MBLK	Units µg/L	Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
			SampID: MBLK-N190904A-1									
1,1,1,2-Tetrachloroethane		2.0				ND						09/04/2019
1,1,1-Trichloroethane		2.0				ND						09/04/2019
1,1,2,2-Tetrachloroethane		2.0				ND						09/04/2019
1,1,2-Trichloro-1,2,2-trifluoroethane		5.0				ND						09/04/2019
1,1,2-Trichloroethane		0.5				ND						09/04/2019
1,1-Dichloro-2-propanone		30.0				ND						09/04/2019
1,1-Dichloroethane		2.0				ND						09/04/2019
1,1-Dichloroethene		2.0				ND						09/04/2019
1,1-Dichloropropene		2.0				ND						09/04/2019
1,2,3-Trichlorobenzene		2.0				ND						09/04/2019
1,2,3-Trichloropropane		2.0				ND						09/04/2019
1,2,3-Trimethylbenzene		2.0				ND						09/04/2019
1,2,4-Trichlorobenzene		2.0				ND						09/04/2019
1,2,4-Trimethylbenzene		2.0				ND						09/04/2019
1,2-Dibromo-3-chloropropane		5.0				ND						09/04/2019
1,2-Dibromoethane		2.0				ND						09/04/2019
1,2-Dichlorobenzene		2.0				ND						09/04/2019
1,2-Dichloroethane		2.0				ND						09/04/2019
1,2-Dichloropropane		2.0				ND						09/04/2019
1,3,5-Trimethylbenzene		2.0				ND						09/04/2019
1,3-Dichlorobenzene		2.0				ND						09/04/2019
1,3-Dichloropropane		2.0				ND						09/04/2019
1,4-Dichlorobenzene		2.0				ND						09/04/2019
1-Chlorobutane		5.0				ND						09/04/2019
2,2-Dichloropropane		2.0				ND						09/04/2019
2-Butanone		10.0				ND						09/04/2019
2-Chloroethyl vinyl ether		5.0				ND						09/04/2019
2-Chlorotoluene		2.0				ND						09/04/2019
2-Hexanone		10.0				ND						09/04/2019
2-Nitropropane		10.0				ND						09/04/2019
4-Chlorotoluene		2.0				ND						09/04/2019
4-Methyl-2-pentanone		10.0				ND						09/04/2019
Acetone		10.0				ND						09/04/2019
Acetonitrile		10.0				ND						09/04/2019
Acrolein		20.0				ND						09/04/2019
Acrylonitrile		5.0				ND						09/04/2019
Allyl chloride		5.0				ND						09/04/2019
Benzene		0.5				ND						09/04/2019
Bromobenzene		2.0				ND						09/04/2019
Bromochloromethane		2.0				ND						09/04/2019
Bromodichloromethane		2.0				ND						09/04/2019
Bromoform		2.0				ND						09/04/2019
Bromomethane		5.0				ND						09/04/2019
Carbon disulfide		2.0				ND						09/04/2019
Carbon tetrachloride		2.0				ND						09/04/2019
Chlorobenzene		2.0				ND						09/04/2019
Chloroethane		2.0				ND						09/04/2019

Quality Control Results

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Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 156979	SampType: MBLK	Units µg/L	Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
			SampID: MBLK-N190904A-1									
Chloroform		2.0				ND						09/04/2019
Chloromethane		5.0				ND						09/04/2019
Chloroprene		5.0				ND						09/04/2019
cis-1,2-Dichloroethene		2.0				ND						09/04/2019
cis-1,3-Dichloropropene		2.0				ND						09/04/2019
cis-1,4-Dichloro-2-butene		2.0				ND						09/04/2019
Cyclohexanone		20.0				ND						09/04/2019
Dibromochloromethane		2.0				ND						09/04/2019
Dibromomethane		2.0				ND						09/04/2019
Dichlorodifluoromethane		2.0				ND						09/04/2019
Ethyl acetate		10.0				ND						09/04/2019
Ethyl ether		5.0				ND						09/04/2019
Ethyl methacrylate		5.0				ND						09/04/2019
Ethylbenzene		2.0				ND						09/04/2019
Hexachlorobutadiene		5.0				ND						09/04/2019
Hexachloroethane		5.0				ND						09/04/2019
Iodomethane		5.0				ND						09/04/2019
Isopropylbenzene		2.0				ND						09/04/2019
m,p-Xylenes		2.0				ND						09/04/2019
Methacrylonitrile		5.0				ND						09/04/2019
Methyl Methacrylate		5.0				ND						09/04/2019
Methyl tert-butyl ether		2.0				ND						09/04/2019
Methylacrylate		5.0				ND						09/04/2019
Methylene chloride		10.0				ND						09/04/2019
Naphthalene		5.0				ND						09/04/2019
n-Butyl acetate		2.0				ND						09/04/2019
n-Butylbenzene		2.0				ND						09/04/2019
n-Heptane		5.0				ND						09/04/2019
n-Hexane		5.0				ND						09/04/2019
Nitrobenzene		50.0				ND						09/04/2019
n-Propylbenzene		2.0				ND						09/04/2019
o-Xylene		2.0				ND						09/04/2019
Pentachloroethane		5.0				ND						09/04/2019
p-Isopropyltoluene		2.0				ND						09/04/2019
Propionitrile		10.0				ND						09/04/2019
sec-Butylbenzene		2.0				ND						09/04/2019
Styrene		2.0				ND						09/04/2019
tert-Butylbenzene		2.0				ND						09/04/2019
Tetrachloroethene		0.5				ND						09/04/2019
Tetrahydrofuran		5.0				ND						09/04/2019
Toluene		2.0				ND						09/04/2019
trans-1,2-Dichloroethene		2.0				ND						09/04/2019
trans-1,3-Dichloropropene		2.0				ND						09/04/2019
trans-1,4-Dichloro-2-butene		2.0				ND						09/04/2019
Trichloroethene		2.0				ND						09/04/2019
Trichlorofluoromethane		5.0				ND						09/04/2019
Vinyl acetate		5.0				ND						09/04/2019



Quality Control Results

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SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch	156979	SampType	MBLK	Units	µg/L							
SampID: MBLK-N190904A-1												
Analyses		RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed	
Vinyl chloride		2.0		ND							09/04/2019	
Surr: 1,2-Dichloroethane-d4				44.4	50.00		88.9		79.6	118	09/04/2019	
Surr: 4-Bromofluorobenzene				47.2	50.00		94.4		83.9	115	09/04/2019	
Surr: Dibromofluoromethane				48.1	50.00		96.3		84.9	113	09/04/2019	
Surr: Toluene-d8				53.1	50.00		106.2		86.7	112	09/04/2019	

Quality Control Results

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Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 156979	SampType: LCSD	Units µg/L	RPD Limit 40							Date Analyzed		
SampleID: LCSD-N190904A-1			Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	
1,1,1,2-Tetrachloroethane	2.0		46.8	50.00	0	93.5		44.50	4.95		09/04/2019	
1,1,1-Trichloroethane	2.0		45.8	50.00	0	91.7		43.16	6.04		09/04/2019	
1,1,2,2-Tetrachloroethane	2.0		48.7	50.00	0	97.5		43.39	11.61		09/04/2019	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0		48.3	50.00	0	96.5		44.26	8.65		09/04/2019	
1,1,2-Trichloroethane	0.5		49.2	50.00	0	98.5		45.86	7.11		09/04/2019	
1,1-Dichloro-2-propanone	30.0		102	125.0	0	81.6		95.55	6.57		09/04/2019	
1,1-Dichloroethane	2.0		46.8	50.00	0	93.5		44.01	6.08		09/04/2019	
1,1-Dichloroethene	2.0		45.5	50.00	0	90.9		42.62	6.47		09/04/2019	
1,1-Dichloropropene	2.0		46.1	50.00	0	92.3		44.28	4.11		09/04/2019	
1,2,3-Trichlorobenzene	2.0		48.8	50.00	0	97.5		46.92	3.83		09/04/2019	
1,2,3-Trichloropropane	2.0		45.0	50.00	0	89.9		40.50	10.42		09/04/2019	
1,2,3-Trimethylbenzene	2.0		51.5	50.00	0	102.9		46.47	10.19		09/04/2019	
1,2,4-Trichlorobenzene	2.0		51.1	50.00	0	102.2		46.79	8.84		09/04/2019	
1,2,4-Trimethylbenzene	2.0		48.5	50.00	0	97.0		43.82	10.16		09/04/2019	
1,2-Dibromo-3-chloropropane	5.0		44.0	50.00	0	88.0		39.06	11.92		09/04/2019	
1,2-Dibromoethane	2.0		47.2	50.00	0	94.5		42.90	9.63		09/04/2019	
1,2-Dichlorobenzene	2.0		50.4	50.00	0	100.8		47.69	5.55		09/04/2019	
1,2-Dichloroethane	2.0		42.3	50.00	0	84.7		41.08	3.00		09/04/2019	
1,2-Dichloropropane	2.0		46.0	50.00	0	92.0		43.07	6.54		09/04/2019	
1,3,5-Trimethylbenzene	2.0		47.9	50.00	0	95.8		44.09	8.28		09/04/2019	
1,3-Dichlorobenzene	2.0		50.2	50.00	0	100.4		45.51	9.78		09/04/2019	
1,3-Dichloropropane	2.0		48.6	50.00	0	97.2		43.49	11.10		09/04/2019	
1,4-Dichlorobenzene	2.0		49.0	50.00	0	98.0		45.11	8.25		09/04/2019	
1-Chlorobutane	5.0		47.2	50.00	0	94.3		44.23	6.43		09/04/2019	
2,2-Dichloropropane	2.0		44.7	50.00	0	89.4		42.92	4.02		09/04/2019	
2-Butanone	10.0		107	125.0	0	85.4		101.2	5.33		09/04/2019	
2-Chloroethyl vinyl ether	5.0		46.6	50.00	0	93.3		44.23	5.33		09/04/2019	
2-Chlorotoluene	2.0		50.4	50.00	0	100.8		46.03	9.06		09/04/2019	
2-Hexanone	10.0		104	125.0	0	83.4		102.5	1.69		09/04/2019	
2-Nitropropane	10.0		413	500.0	0	82.5		383.0	7.42		09/04/2019	
4-Chlorotoluene	2.0		47.9	50.00	0	95.8		43.53	9.52		09/04/2019	
4-Methyl-2-pentanone	10.0		110	125.0	0	87.7		104.1	5.09		09/04/2019	
Acetone	10.0		99.2	125.0	0	79.4		92.67	6.84		09/04/2019	
Acetonitrile	10.0		436	500.0	0	87.2		409.0	6.43		09/04/2019	
Acrolein	20.0		514	500.0	0	102.9		515.7	0.24		09/04/2019	
Acrylonitrile	5.0		46.5	50.00	0	93.1		43.60	6.52		09/04/2019	
Allyl chloride	5.0		50.4	50.00	0	100.7		48.04	4.70		09/04/2019	
Benzene	0.5		46.7	50.00	0	93.5		43.74	6.61		09/04/2019	
Bromobenzene	2.0		50.4	50.00	0	100.8		44.20	13.11		09/04/2019	
Bromochloromethane	2.0		45.0	50.00	0	90.0		42.17	6.47		09/04/2019	
Bromodichloromethane	2.0		43.1	50.00	0	86.2		39.95	7.59		09/04/2019	
Bromoform	2.0		43.7	50.00	0	87.5		41.72	4.73		09/04/2019	
Bromomethane	5.0		31.2	50.00	0	62.5		26.33	17.06		09/04/2019	
Carbon disulfide	2.0		45.7	50.00	0	91.5		43.69	4.58		09/04/2019	
Carbon tetrachloride	2.0		44.4	50.00	0	88.9		41.73	6.31		09/04/2019	
Chlorobenzene	2.0		47.1	50.00	0	94.1		43.89	6.97		09/04/2019	
Chloroethane	2.0		56.9	50.00	0	113.7		51.78	9.35		09/04/2019	

Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch	156979	SampType	LCSD	Units	µg/L	RPD Limit 40						Date Analyzed			
				Sample ID:	LCSD-N190904A-1	Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	
Chloroform				2.0		44.4	50.00	0	88.7		42.62		3.98		09/04/2019
Chloromethane				5.0		63.7	50.00	0	127.4		58.71		8.12		09/04/2019
Chloroprene				5.0		43.3	50.00	0	86.6		38.72		11.14		09/04/2019
cis-1,2-Dichloroethene				2.0		46.9	50.00	0	93.8		45.28		3.47		09/04/2019
cis-1,3-Dichloropropene				2.0		46.9	50.00	0	93.9		45.41		3.29		09/04/2019
cis-1,4-Dichloro-2-butene				2.0		40.5	50.00	0	81.0		37.28		8.26		09/04/2019
Cyclohexanone				20.0		419	500.0	0	83.7		399.9		4.58		09/04/2019
Dibromochloromethane				2.0		48.0	50.00	0	96.0		43.75		9.29		09/04/2019
Dibromomethane				2.0		47.4	50.00	0	94.9		43.64		8.34		09/04/2019
Dichlorodifluoromethane				2.0		47.5	50.00	0	95.0		43.36		9.15		09/04/2019
Ethyl acetate				10.0		44.8	50.00	0	89.6		44.38		0.96		09/04/2019
Ethyl ether				5.0		45.7	50.00	0	91.4		43.70		4.50		09/04/2019
Ethyl methacrylate				5.0		47.6	50.00	0	95.1		43.81		8.19		09/04/2019
Ethylbenzene				2.0		46.7	50.00	0	93.4		45.46		2.73		09/04/2019
Hexachlorobutadiene				5.0		48.0	50.00	0	96.0		43.56		9.68		09/04/2019
Hexachloroethane				5.0		47.6	50.00	0	95.2		42.38		11.60		09/04/2019
Iodomethane				5.0		47.9	50.00	0	95.8		42.41		12.20		09/04/2019
Isopropylbenzene				2.0		45.8	50.00	0	91.6		43.44		5.33		09/04/2019
m,p-Xylenes				2.0		97.3	100.0	0	97.3		87.60		10.53		09/04/2019
Methacrylonitrile				5.0		43.1	50.00	0	86.3		41.19		4.62		09/04/2019
Methyl Methacrylate				5.0		43.0	50.00	0	86.1		40.38		6.38		09/04/2019
Methyl tert-butyl ether				2.0		48.4	50.00	0	96.7		44.20		8.97		09/04/2019
Methylacrylate				5.0		45.1	50.00	0	90.2		41.35		8.68		09/04/2019
Methylene chloride				10.0		44.3	50.00	0	88.6		40.92		7.89		09/04/2019
Naphthalene				5.0		54.7	50.00	0	109.4		49.68		9.60		09/04/2019
n-Butyl acetate				2.0		43.8	50.00	0	87.6		43.03		1.77		09/04/2019
n-Butylbenzene				2.0		51.2	50.00	0	102.3		47.84		6.69		09/04/2019
n-Heptane				5.0		43.1	50.00	0	86.2		40.26		6.81		09/04/2019
n-Hexane				5.0		47.2	50.00	0	94.3		44.21		6.46		09/04/2019
Nitrobenzene				50.0		361	500.0	0	72.3		315.5		13.57		09/04/2019
n-Propylbenzene				2.0		48.6	50.00	0	97.3		44.77		8.27		09/04/2019
o-Xylene				2.0		45.9	50.00	0	91.8		42.24		8.33		09/04/2019
Pentachloroethane				5.0		43.5	50.00	0	86.9		38.25		12.75		09/04/2019
p-Isopropyltoluene				2.0		51.0	50.00	0	102.1		47.07		8.11		09/04/2019
Propionitrile				10.0		474	500.0	0	94.7		444.0		6.43		09/04/2019
sec-Butylbenzene				2.0		50.6	50.00	0	101.1		45.81		9.86		09/04/2019
Styrene				2.0		48.4	50.00	0	96.8		44.65		8.04		09/04/2019
tert-Butylbenzene				2.0		46.6	50.00	0	93.3		43.65		6.60		09/04/2019
Tetrachloroethene				0.5		48.4	50.00	0	96.8		47.47		1.92		09/04/2019
Tetrahydrofuran				5.0		41.0	50.00	0	81.9		38.70		5.67		09/04/2019
Toluene				2.0		46.6	50.00	0	93.2		43.03		7.99		09/04/2019
trans-1,2-Dichloroethene				2.0		48.4	50.00	0	96.7		44.84		7.53		09/04/2019
trans-1,3-Dichloropropene				2.0		45.4	50.00	0	90.8		42.53		6.57		09/04/2019
trans-1,4-Dichloro-2-butene				2.0		43.0	50.00	0	85.9		38.44		11.11		09/04/2019
Trichloroethene				2.0		49.3	50.00	0	98.6		46.12		6.69		09/04/2019
Trichlorofluoromethane				5.0		48.8	50.00	0	97.7		42.91		12.93		09/04/2019
Vinyl acetate				5.0		47.7	50.00	0	95.5		44.89		6.13		09/04/2019



Quality Control Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch	156979	SampType	LCSD	Units	µg/L	RPD Limit 40						
								RPD	Ref	Val	%RPD	Date Analyzed
Analyses		RL	Qual	Result	Spike	SPK	Ref	Val	%REC			
Vinyl chloride		2.0		58.2	50.00	0	116.3		53.40	8.53		09/04/2019
Surr: 1,2-Dichloroethane-d4				43.6	50.00		87.3					09/04/2019
Surr: 4-Bromofluorobenzene				48.5	50.00		97.0					09/04/2019
Surr: Dibromofluoromethane				47.0	50.00		94.1					09/04/2019
Surr: Toluene-d8				47.8	50.00		95.6					09/04/2019

Quality Control Results

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Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 156979	SampType: LCS	Units µg/L								
Analyses	RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1,2-Tetrachloroethane	2.0		44.5	50.00	0	89.0		83.4	118	09/04/2019
1,1,1-Trichloroethane	2.0		43.2	50.00	0	86.3		79.1	123	09/04/2019
1,1,2,2-Tetrachloroethane	2.0		43.4	50.00	0	86.8		70.7	121	09/04/2019
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0		44.3	50.00	0	88.5		75.2	133	09/04/2019
1,1,2-Trichloroethane	0.5		45.9	50.00	0	91.7		79.8	117	09/04/2019
1,1-Dichloro-2-propanone	30.0		95.6	125.0	0	76.4		63.8	122	09/04/2019
1,1-Dichloroethane	2.0		44.0	50.00	0	88.0		75.1	122	09/04/2019
1,1-Dichloroethene	2.0		42.6	50.00	0	85.2		68.3	121	09/04/2019
1,1-Dichloropropene	2.0		44.3	50.00	0	88.6		76.7	122	09/04/2019
1,2,3-Trichlorobenzene	2.0		46.9	50.00	0	93.8		77.1	130	09/04/2019
1,2,3-Trichloropropane	2.0		40.5	50.00	0	81.0		70.6	114	09/04/2019
1,2,3-Trimethylbenzene	2.0		46.5	50.00	0	92.9		77.4	117	09/04/2019
1,2,4-Trichlorobenzene	2.0		46.8	50.00	0	93.6		79.6	128	09/04/2019
1,2,4-Trimethylbenzene	2.0		43.8	50.00	0	87.6		78.9	117	09/04/2019
1,2-Dibromo-3-chloropropane	5.0		39.1	50.00	0	78.1		68.1	123	09/04/2019
1,2-Dibromoethane	2.0		42.9	50.00	0	85.8		82.9	114	09/04/2019
1,2-Dichlorobenzene	2.0		47.7	50.00	0	95.4		75.2	120	09/04/2019
1,2-Dichloroethane	2.0		41.1	50.00	0	82.2		76.9	117	09/04/2019
1,2-Dichloropropane	2.0		43.1	50.00	0	86.1		76.4	121	09/04/2019
1,3,5-Trimethylbenzene	2.0		44.1	50.00	0	88.2		79.8	118	09/04/2019
1,3-Dichlorobenzene	2.0		45.5	50.00	0	91.0		80.5	119	09/04/2019
1,3-Dichloropropane	2.0		43.5	50.00	0	87.0		77.5	113	09/04/2019
1,4-Dichlorobenzene	2.0		45.1	50.00	0	90.2		80.2	115	09/04/2019
1-Chlorobutane	5.0		44.2	50.00	0	88.5		75.1	123	09/04/2019
2,2-Dichloropropane	2.0		42.9	50.00	0	85.8		62.4	151	09/04/2019
2-Butanone	10.0		101	125.0	0	81.0		65.7	120	09/04/2019
2-Chloroethyl vinyl ether	5.0		44.2	50.00	0	88.5		31.5	159	09/04/2019
2-Chlorotoluene	2.0		46.0	50.00	0	92.1		76	117	09/04/2019
2-Hexanone	10.0		103	125.0	0	82.0		65.1	121	09/04/2019
2-Nitropropane	10.0		383	500.0	0	76.6		70.5	133	09/04/2019
4-Chlorotoluene	2.0		43.5	50.00	0	87.1		77	117	09/04/2019
4-Methyl-2-pentanone	10.0		104	125.0	0	83.3		69.6	117	09/04/2019
Acetone	10.0		92.7	125.0	0	74.1		47.5	123	09/04/2019
Acetonitrile	10.0		409	500.0	0	81.8		56	136	09/04/2019
Acrolein	20.0		516	500.0	0	103.1		27	164	09/04/2019
Acrylonitrile	5.0		43.6	50.00	0	87.2		74.8	127	09/04/2019
Allyl chloride	5.0		48.0	50.00	0	96.1		66.3	134	09/04/2019
Benzene	0.5		43.7	50.00	0	87.5		75.8	121	09/04/2019
Bromobenzene	2.0		44.2	50.00	0	88.4		72.7	119	09/04/2019
Bromochloromethane	2.0		42.2	50.00	0	84.3		69	123	09/04/2019
Bromodichloromethane	2.0	S	40.0	50.00	0	79.9		80.8	128	09/04/2019
Bromoform	2.0	S	41.7	50.00	0	83.4		85.5	128	09/04/2019
Bromomethane	5.0		26.3	50.00	0	52.7		-36.7	277	09/04/2019
Carbon disulfide	2.0		43.7	50.00	0	87.4		64.9	133	09/04/2019
Carbon tetrachloride	2.0		41.7	50.00	0	83.5		79.5	129	09/04/2019
Chlorobenzene	2.0		43.9	50.00	0	87.8		82.1	113	09/04/2019
Chloroethane	2.0		51.8	50.00	0	103.6		43.9	138	09/04/2019

Quality Control Results

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Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 156979	SampType: LCS	Units µg/L							Date Analyzed	
Analyses	RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	
Chloroform	2.0		42.6	50.00	0	85.2		80.1	122	09/04/2019
Chloromethane	5.0		58.7	50.00	0	117.4		50.8	131	09/04/2019
Chloroprene	5.0		38.7	50.00	0	77.4		74.4	123	09/04/2019
cis-1,2-Dichloroethene	2.0		45.3	50.00	0	90.6		78.6	119	09/04/2019
cis-1,3-Dichloropropene	2.0		45.4	50.00	0	90.8		79	129	09/04/2019
cis-1,4-Dichloro-2-butene	2.0		37.3	50.00	0	74.6		59.7	125	09/04/2019
Cyclohexanone	20.0		400	500.0	0	80.0		15.1	162	09/04/2019
Dibromochloromethane	2.0	S	43.8	50.00	0	87.5		88.1	123	09/04/2019
Dibromomethane	2.0		43.6	50.00	0	87.3		75.3	120	09/04/2019
Dichlorodifluoromethane	2.0		43.4	50.00	0	86.7		35.7	155	09/04/2019
Ethyl acetate	10.0		44.4	50.00	0	88.8		66.6	119	09/04/2019
Ethyl ether	5.0		43.7	50.00	0	87.4		74.4	120	09/04/2019
Ethyl methacrylate	5.0		43.8	50.00	0	87.6		80.6	123	09/04/2019
Ethylbenzene	2.0		45.5	50.00	0	90.9		80.7	114	09/04/2019
Hexachlorobutadiene	5.0		43.6	50.00	0	87.1		68.2	141	09/04/2019
Hexachloroethane	5.0		42.4	50.00	0	84.8		69.4	125	09/04/2019
Iodomethane	5.0		42.4	50.00	0	84.8		-19.1	196	09/04/2019
Isopropylbenzene	2.0		43.4	50.00	0	86.9		81.3	116	09/04/2019
m,p-Xylenes	2.0		87.6	100.0	0	87.6		80.5	113	09/04/2019
Methacrylonitrile	5.0		41.2	50.00	0	82.4		75.3	122	09/04/2019
Methyl Methacrylate	5.0		40.4	50.00	0	80.8		71.9	121	09/04/2019
Methyl tert-butyl ether	2.0		44.2	50.00	0	88.4		79.5	121	09/04/2019
Methylacrylate	5.0		41.4	50.00	0	82.7		71.2	129	09/04/2019
Methylene chloride	10.0		40.9	50.00	0	81.8		76.2	119	09/04/2019
Naphthalene	5.0		49.7	50.00	0	99.4		76.1	129	09/04/2019
n-Butyl acetate	2.0		43.0	50.00	0	86.1		62.9	121	09/04/2019
n-Butylbenzene	2.0		47.8	50.00	0	95.7		71.6	122	09/04/2019
n-Heptane	5.0		40.3	50.00	0	80.5		55.1	130	09/04/2019
n-Hexane	5.0		44.2	50.00	0	88.4		61.9	131	09/04/2019
Nitrobenzene	50.0		316	500.0	0	63.1		32.2	151	09/04/2019
n-Propylbenzene	2.0		44.8	50.00	0	89.5		76	120	09/04/2019
o-Xylene	2.0		42.2	50.00	0	84.5		79.7	112	09/04/2019
Pentachloroethane	5.0	S	38.2	50.00	0	76.5		78.3	128	09/04/2019
p-Isopropyltoluene	2.0		47.1	50.00	0	94.1		76.2	122	09/04/2019
Propionitrile	10.0		444	500.0	0	88.8		67.8	125	09/04/2019
sec-Butylbenzene	2.0		45.8	50.00	0	91.6		76.6	119	09/04/2019
Styrene	2.0		44.6	50.00	0	89.3		82.8	116	09/04/2019
tert-Butylbenzene	2.0		43.6	50.00	0	87.3		74.7	117	09/04/2019
Tetrachloroethene	0.5		47.5	50.00	0	94.9		80.6	122	09/04/2019
Tetrahydrofuran	5.0		38.7	50.00	0	77.4		65.4	116	09/04/2019
Toluene	2.0		43.0	50.00	0	86.1		78.3	112	09/04/2019
trans-1,2-Dichloroethene	2.0		44.8	50.00	0	89.7		73.5	124	09/04/2019
trans-1,3-Dichloropropene	2.0		42.5	50.00	0	85.1		83.4	124	09/04/2019
trans-1,4-Dichloro-2-butene	2.0		38.4	50.00	0	76.9		58.9	132	09/04/2019
Trichloroethene	2.0		46.1	50.00	0	92.2		74.3	125	09/04/2019
Trichlorofluoromethane	5.0		42.9	50.00	0	85.8		71.5	136	09/04/2019
Vinyl acetate	5.0		44.9	50.00	0	89.8		65.9	136	09/04/2019



Quality Control Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 156979	SampType: LCS	Units µg/L										
SampID: LCS-N190904A-1			Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Vinyl chloride		2.0				53.4	50.00	0	106.8	55.8	135	09/04/2019
Surr: 1,2-Dichloroethane-d4						45.4	50.00		90.7	79.6	118	09/04/2019
Surr: 4-Bromofluorobenzene						48.7	50.00		97.4	83.9	115	09/04/2019
Surr: Dibromofluoromethane						49.4	50.00		98.8	84.9	113	09/04/2019
Surr: Toluene-d8						49.0	50.00		98.0	86.7	112	09/04/2019

Batch 156979 SampType: LCSGD Units %REC

Batch 156979	SampType: LCSGD	Units %REC	RPD Limit 0									
SampID: LCSGD-N190904A-1			Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Surr: 1,2-Dichloroethane-d4						43.8	50.00		87.5			09/04/2019
Surr: 4-Bromofluorobenzene						46.7	50.00		93.4			09/04/2019
Surr: Dibromofluoromethane						47.9	50.00		95.8			09/04/2019
Surr: Toluene-d8						50.3	50.00		100.6			09/04/2019

Batch 156979 SampType: LCSG Units %REC

Batch 156979	SampType: LCSG	Units %REC										
SampID: LCSG-N190904A-1			Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Surr: 1,2-Dichloroethane-d4						45.3	50.00		90.6	79.6	118	09/04/2019
Surr: 4-Bromofluorobenzene						46.6	50.00		93.3	83.9	115	09/04/2019
Surr: Dibromofluoromethane						47.7	50.00		95.4	84.9	113	09/04/2019
Surr: Toluene-d8						52.0	50.00		104.0	86.7	112	09/04/2019

Quality Control Results

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Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch	156991	SampType	MBLK	Units	µg/L	Analyses	RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed
			SampID: MBLK-AE190905A-1													
1,1,1,2-Tetrachloroethane				2.0					ND							09/05/2019
1,1,1-Trichloroethane				2.0					ND							09/05/2019
1,1,2,2-Tetrachloroethane				2.0					ND							09/05/2019
1,1,2-Trichloro-1,2,2-trifluoroethane				5.0					ND							09/05/2019
1,1,2-Trichloroethane				0.5					ND							09/05/2019
1,1-Dichloro-2-propanone				30.0					ND							09/05/2019
1,1-Dichloroethane				2.0					ND							09/05/2019
1,1-Dichloroethene				2.0					ND							09/05/2019
1,1-Dichloropropene				2.0					ND							09/05/2019
1,2,3-Trichlorobenzene				2.0					ND							09/05/2019
1,2,3-Trichloropropane				2.0					ND							09/05/2019
1,2,3-Trimethylbenzene				2.0					ND							09/05/2019
1,2,4-Trichlorobenzene				2.0					ND							09/05/2019
1,2,4-Trimethylbenzene				2.0					ND							09/05/2019
1,2-Dibromo-3-chloropropane				5.0					ND							09/05/2019
1,2-Dibromoethane				2.0					ND							09/05/2019
1,2-Dichlorobenzene				2.0					ND							09/05/2019
1,2-Dichloroethane				2.0					ND							09/05/2019
1,2-Dichloropropane				2.0					ND							09/05/2019
1,3,5-Trimethylbenzene				2.0					ND							09/05/2019
1,3-Dichlorobenzene				2.0					ND							09/05/2019
1,3-Dichloropropane				2.0					ND							09/05/2019
1,4-Dichlorobenzene				2.0					ND							09/05/2019
1-Chlorobutane				5.0					ND							09/05/2019
2,2-Dichloropropane				2.0					ND							09/05/2019
2-Butanone				10.0					ND							09/05/2019
2-Chloroethyl vinyl ether				5.0					ND							09/05/2019
2-Chlorotoluene				2.0					ND							09/05/2019
2-Hexanone				10.0					ND							09/05/2019
2-Nitropropane				10.0					ND							09/05/2019
4-Chlorotoluene				2.0					ND							09/05/2019
4-Methyl-2-pentanone				10.0					ND							09/05/2019
Acetone				10.0					ND							09/05/2019
Acetonitrile				10.0					ND							09/05/2019
Acrolein				20.0					ND							09/05/2019
Acrylonitrile				5.0					ND							09/05/2019
Allyl chloride				5.0					ND							09/05/2019
Benzene				0.5					ND							09/05/2019
Bromobenzene				2.0					ND							09/05/2019
Bromochloromethane				2.0					ND							09/05/2019
Bromodichloromethane				2.0					ND							09/05/2019
Bromoform				2.0					ND							09/05/2019
Bromomethane				5.0					ND							09/05/2019
Carbon disulfide				2.0					ND							09/05/2019
Carbon tetrachloride				2.0					ND							09/05/2019
Chlorobenzene				2.0					ND							09/05/2019
Chloroethane				2.0					ND							09/05/2019

Quality Control Results

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Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch	156991	SampType	MBLK	Units	µg/L	Analyses	RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed
						SampID:	MBLK-AE190905A-1									
Chloroform				2.0					ND							09/05/2019
Chloromethane				5.0					ND							09/05/2019
Chloroprene				5.0					ND							09/05/2019
cis-1,2-Dichloroethene				2.0					ND							09/05/2019
cis-1,3-Dichloropropene				2.0					ND							09/05/2019
cis-1,4-Dichloro-2-butene				2.0					ND							09/05/2019
Cyclohexanone				20.0					ND							09/05/2019
Dibromochloromethane				2.0					ND							09/05/2019
Dibromomethane				2.0					ND							09/05/2019
Dichlorodifluoromethane				2.0					ND							09/05/2019
Ethyl acetate				10.0					ND							09/05/2019
Ethyl ether				5.0					ND							09/05/2019
Ethyl methacrylate				5.0					ND							09/05/2019
Ethylbenzene				2.0					ND							09/05/2019
Hexachlorobutadiene				5.0					ND							09/05/2019
Hexachloroethane				5.0					ND							09/05/2019
Iodomethane				5.0					ND							09/05/2019
Isopropylbenzene				2.0					ND							09/05/2019
m,p-Xylenes				2.0					ND							09/05/2019
Methacrylonitrile				5.0					ND							09/05/2019
Methyl Methacrylate				5.0					ND							09/05/2019
Methyl tert-butyl ether				2.0					ND							09/05/2019
Methylacrylate				5.0					ND							09/05/2019
Methylene chloride				10.0					ND							09/05/2019
Naphthalene				5.0					ND							09/05/2019
n-Butyl acetate				2.0					ND							09/05/2019
n-Butylbenzene				2.0					ND							09/05/2019
n-Heptane				5.0					ND							09/05/2019
n-Hexane				5.0					ND							09/05/2019
Nitrobenzene				50.0					ND							09/05/2019
n-Propylbenzene				2.0					ND							09/05/2019
o-Xylene				2.0					ND							09/05/2019
Pentachloroethane				5.0					ND							09/05/2019
p-Isopropyltoluene				2.0					ND							09/05/2019
Propionitrile				10.0					ND							09/05/2019
sec-Butylbenzene				2.0					ND							09/05/2019
Styrene				2.0					ND							09/05/2019
tert-Butylbenzene				2.0					ND							09/05/2019
Tetrachloroethene				0.5					ND							09/05/2019
Tetrahydrofuran				5.0					ND							09/05/2019
Toluene				2.0					ND							09/05/2019
trans-1,2-Dichloroethene				2.0					ND							09/05/2019
trans-1,3-Dichloropropene				2.0					ND							09/05/2019
trans-1,4-Dichloro-2-butene				2.0					ND							09/05/2019
Trichloroethene				2.0					ND							09/05/2019
Trichlorofluoromethane				5.0					ND							09/05/2019
Vinyl acetate				5.0					ND							09/05/2019



Quality Control Results

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Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch	156991	SampType	MBLK	Units	µg/L							
SampID: MBLK-AE190905A-1												
Analyses		RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed	
Vinyl chloride		2.0		ND							09/05/2019	
Surr: 1,2-Dichloroethane-d4				50.5	50.00		101.1		79.6	118	09/05/2019	
Surr: 4-Bromofluorobenzene				50.0	50.00		99.9		83.9	115	09/05/2019	
Surr: Dibromofluoromethane				49.3	50.00		98.6		84.9	113	09/05/2019	
Surr: Toluene-d8				49.7	50.00		99.4		86.7	112	09/05/2019	

Quality Control Results

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Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 156991	SampType: LCS	Units µg/L								
Analyses	RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1,2-Tetrachloroethane	2.0		47.9	50.00	0	95.8		83.4	118	09/05/2019
1,1,1-Trichloroethane	2.0		50.6	50.00	0	101.3		79.1	123	09/05/2019
1,1,2,2-Tetrachloroethane	2.0		47.2	50.00	0	94.4		70.7	121	09/05/2019
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0		49.2	50.00	0	98.4		75.2	133	09/05/2019
1,1,2-Trichloroethane	0.5		48.8	50.00	0	97.5		79.8	117	09/05/2019
1,1-Dichloro-2-propanone	30.0		124	125.0	0	99.6		63.8	122	09/05/2019
1,1-Dichloroethane	2.0		49.8	50.00	0	99.6		75.1	122	09/05/2019
1,1-Dichloroethene	2.0		50.3	50.00	0	100.5		68.3	121	09/05/2019
1,1-Dichloropropene	2.0		48.0	50.00	0	96.0		76.7	122	09/05/2019
1,2,3-Trichlorobenzene	2.0		49.5	50.00	0	99.0		77.1	130	09/05/2019
1,2,3-Trichloropropane	2.0		47.8	50.00	0	95.7		70.6	114	09/05/2019
1,2,3-Trimethylbenzene	2.0		48.0	50.00	0	95.9		77.4	117	09/05/2019
1,2,4-Trichlorobenzene	2.0		49.4	50.00	0	98.9		79.6	128	09/05/2019
1,2,4-Trimethylbenzene	2.0		47.3	50.00	0	94.6		78.9	117	09/05/2019
1,2-Dibromo-3-chloropropane	5.0		49.6	50.00	0	99.1		68.1	123	09/05/2019
1,2-Dibromoethane	2.0		47.6	50.00	0	95.2		82.9	114	09/05/2019
1,2-Dichlorobenzene	2.0		46.0	50.00	0	92.0		75.2	120	09/05/2019
1,2-Dichloroethane	2.0		47.0	50.00	0	94.0		76.9	117	09/05/2019
1,2-Dichloropropane	2.0		46.1	50.00	0	92.2		76.4	121	09/05/2019
1,3,5-Trimethylbenzene	2.0		47.5	50.00	0	95.1		79.8	118	09/05/2019
1,3-Dichlorobenzene	2.0		46.3	50.00	0	92.5		80.5	119	09/05/2019
1,3-Dichloropropane	2.0		46.3	50.00	0	92.7		77.5	113	09/05/2019
1,4-Dichlorobenzene	2.0		45.6	50.00	0	91.2		80.2	115	09/05/2019
1-Chlorobutane	5.0		50.6	50.00	0	101.2		75.1	123	09/05/2019
2,2-Dichloropropane	2.0		52.9	50.00	0	105.8		62.4	151	09/05/2019
2-Butanone	10.0		119	125.0	0	95.3		65.7	120	09/05/2019
2-Chloroethyl vinyl ether	5.0		47.3	50.00	0	94.5		31.5	159	09/05/2019
2-Chlorotoluene	2.0		47.1	50.00	0	94.2		76	117	09/05/2019
2-Hexanone	10.0		117	125.0	0	93.4		65.1	121	09/05/2019
2-Nitropropane	10.0		499	500.0	0	99.7		70.5	133	09/05/2019
4-Chlorotoluene	2.0		47.2	50.00	0	94.3		77	117	09/05/2019
4-Methyl-2-pentanone	10.0		118	125.0	0	94.3		69.6	117	09/05/2019
Acetone	10.0		114	125.0	0	91.3		47.5	123	09/05/2019
Acetonitrile	10.0		477	500.0	0	95.4		56	136	09/05/2019
Acrolein	20.0		490	500.0	0	97.9		27	164	09/05/2019
Acrylonitrile	5.0		48.9	50.00	0	97.9		74.8	127	09/05/2019
Allyl chloride	5.0		49.9	50.00	0	99.7		66.3	134	09/05/2019
Benzene	0.5		46.0	50.00	0	91.9		75.8	121	09/05/2019
Bromobenzene	2.0		46.9	50.00	0	93.8		72.7	119	09/05/2019
Bromochloromethane	2.0		46.7	50.00	0	93.3		69	123	09/05/2019
Bromodichloromethane	2.0		48.6	50.00	0	97.2		80.8	128	09/05/2019
Bromoform	2.0		49.0	50.00	0	98.0		85.5	128	09/05/2019
Bromomethane	5.0		52.8	50.00	0	105.5		-36.7	277	09/05/2019
Carbon disulfide	2.0		46.8	50.00	0	93.5		64.9	133	09/05/2019
Carbon tetrachloride	2.0		50.1	50.00	0	100.1		79.5	129	09/05/2019
Chlorobenzene	2.0		46.6	50.00	0	93.2		82.1	113	09/05/2019
Chloroethane	2.0		50.3	50.00	0	100.7		43.9	138	09/05/2019

Quality Control Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 156991	SampType: LCS	Units µg/L								
Analyses	RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloroform	2.0		47.8	50.00	0	95.6		80.1	122	09/05/2019
Chloromethane	5.0		45.2	50.00	0	90.4		50.8	131	09/05/2019
Chloroprene	5.0		49.3	50.00	0	98.7		74.4	123	09/05/2019
cis-1,2-Dichloroethene	2.0		48.6	50.00	0	97.2		78.6	119	09/05/2019
cis-1,3-Dichloropropene	2.0		48.6	50.00	0	97.2		79	129	09/05/2019
cis-1,4-Dichloro-2-butene	2.0		50.8	50.00	0	101.6		59.7	125	09/05/2019
Cyclohexanone	20.0		455	500.0	0	90.9		15.1	162	09/05/2019
Dibromochloromethane	2.0		48.8	50.00	0	97.5		88.1	123	09/05/2019
Dibromomethane	2.0		47.2	50.00	0	94.3		75.3	120	09/05/2019
Dichlorodifluoromethane	2.0		51.5	50.00	0	103.0		35.7	155	09/05/2019
Ethyl acetate	10.0		45.4	50.00	0	90.8		66.6	119	09/05/2019
Ethyl ether	5.0		48.5	50.00	0	96.9		74.4	120	09/05/2019
Ethyl methacrylate	5.0		48.1	50.00	0	96.2		80.6	123	09/05/2019
Ethylbenzene	2.0		46.8	50.00	0	93.5		80.7	114	09/05/2019
Hexachlorobutadiene	5.0		53.5	50.00	0	107.0		68.2	141	09/05/2019
Hexachloroethane	5.0		52.6	50.00	0	105.2		69.4	125	09/05/2019
Iodomethane	5.0		49.8	50.00	0	99.6		-19.1	196	09/05/2019
Isopropylbenzene	2.0		47.4	50.00	0	94.8		81.3	116	09/05/2019
m,p-Xylenes	2.0		93.9	100.0	0	93.9		80.5	113	09/05/2019
Methacrylonitrile	5.0		48.8	50.00	0	97.5		75.3	122	09/05/2019
Methyl Methacrylate	5.0		48.1	50.00	0	96.2		71.9	121	09/05/2019
Methyl tert-butyl ether	2.0		48.5	50.00	0	96.9		79.5	121	09/05/2019
Methylacrylate	5.0		49.9	50.00	0	99.8		71.2	129	09/05/2019
Methylene chloride	10.0		45.6	50.00	0	91.2		76.2	119	09/05/2019
Naphthalene	5.0		47.1	50.00	0	94.1		76.1	129	09/05/2019
n-Butyl acetate	2.0		46.4	50.00	0	92.8		62.9	121	09/05/2019
n-Butylbenzene	2.0		47.7	50.00	0	95.3		71.6	122	09/05/2019
n-Heptane	5.0		54.4	50.00	0	108.7		55.1	130	09/05/2019
n-Hexane	5.0		52.8	50.00	0	105.6		61.9	131	09/05/2019
Nitrobenzene	50.0		454	500.0	0	90.9		32.2	151	09/05/2019
n-Propylbenzene	2.0		48.0	50.00	0	96.0		76	120	09/05/2019
o-Xylene	2.0		46.6	50.00	0	93.3		79.7	112	09/05/2019
Pentachloroethane	5.0		50.6	50.00	0	101.2		78.3	128	09/05/2019
p-Isopropyltoluene	2.0		48.4	50.00	0	96.8		76.2	122	09/05/2019
Propionitrile	10.0		482	500.0	0	96.5		67.8	125	09/05/2019
sec-Butylbenzene	2.0		48.3	50.00	0	96.7		76.6	119	09/05/2019
Styrene	2.0		47.4	50.00	0	94.7		82.8	116	09/05/2019
tert-Butylbenzene	2.0		48.5	50.00	0	97.1		74.7	117	09/05/2019
Tetrachloroethene	0.5		47.0	50.00	0	93.9		80.6	122	09/05/2019
Tetrahydrofuran	5.0		42.4	50.00	0	84.8		65.4	116	09/05/2019
Toluene	2.0		46.4	50.00	0	92.7		78.3	112	09/05/2019
trans-1,2-Dichloroethene	2.0		51.3	50.00	0	102.6		73.5	124	09/05/2019
trans-1,3-Dichloropropene	2.0		48.8	50.00	0	97.6		83.4	124	09/05/2019
trans-1,4-Dichloro-2-butene	2.0		51.0	50.00	0	102.0		58.9	132	09/05/2019
Trichloroethene	2.0		47.9	50.00	0	95.8		74.3	125	09/05/2019
Trichlorofluoromethane	5.0		52.0	50.00	0	104.0		71.5	136	09/05/2019
Vinyl acetate	5.0		50.0	50.00	0	99.9		65.9	136	09/05/2019



Quality Control Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch	156991	SampType	LCS	Units	µg/L							Date Analyzed
SampID:			LCS-AE190905A-1									
Analyses		RL	Qual		Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	
Vinyl chloride		2.0			49.0	50.00	0	98.0	98.0	55.8	135	09/05/2019
Surr: 1,2-Dichloroethane-d4					49.1	50.00			98.2	79.6	118	09/05/2019
Surr: 4-Bromofluorobenzene					49.6	50.00			99.2	83.9	115	09/05/2019
Surr: Dibromofluoromethane					49.1	50.00			98.3	84.9	113	09/05/2019
Surr: Toluene-d8					49.6	50.00			99.1	86.7	112	09/05/2019

Quality Control Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch	156991	SampType	LCSD	Units	µg/L	RPD Limit 40						Date Analyzed	
SampID: LCSD-AE190905A-1													
Analyses		RL	Qual			Result	Spike	SPK	Ref Val	%REC	RPD	Ref Val	%RPD
1,1,1,2-Tetrachloroethane		2.0				47.1	50.00	0	94.2		47.88	1.66	09/05/2019
1,1,1-Trichloroethane		2.0				48.7	50.00	0	97.4		50.64	3.93	09/05/2019
1,1,2,2-Tetrachloroethane		2.0				46.9	50.00	0	93.8		47.19	0.60	09/05/2019
1,1,2-Trichloro-1,2,2-trifluoroethane		5.0				46.6	50.00	0	93.2		49.19	5.45	09/05/2019
1,1,2-Trichloroethane		0.5				48.1	50.00	0	96.2		48.75	1.34	09/05/2019
1,1-Dichloro-2-propanone		30.0				122	125.0	0	97.8		124.4	1.73	09/05/2019
1,1-Dichloroethane		2.0				48.5	50.00	0	97.1		49.78	2.54	09/05/2019
1,1-Dichloroethene		2.0				48.0	50.00	0	95.9		50.27	4.68	09/05/2019
1,1-Dichloropropene		2.0				45.8	50.00	0	91.6		48.01	4.69	09/05/2019
1,2,3-Trichlorobenzene		2.0				48.2	50.00	0	96.3		49.49	2.70	09/05/2019
1,2,3-Trichloropropane		2.0				46.6	50.00	0	93.2		47.85	2.69	09/05/2019
1,2,3-Trimethylbenzene		2.0				47.4	50.00	0	94.8		47.97	1.24	09/05/2019
1,2,4-Trichlorobenzene		2.0				48.0	50.00	0	96.0		49.44	2.98	09/05/2019
1,2,4-Trimethylbenzene		2.0				46.0	50.00	0	92.0		47.28	2.79	09/05/2019
1,2-Dibromo-3-chloropropane		5.0				48.3	50.00	0	96.6		49.57	2.55	09/05/2019
1,2-Dibromoethane		2.0				46.8	50.00	0	93.7		47.59	1.61	09/05/2019
1,2-Dichlorobenzene		2.0				45.5	50.00	0	91.0		46.01	1.16	09/05/2019
1,2-Dichloroethane		2.0				46.3	50.00	0	92.5		47.01	1.61	09/05/2019
1,2-Dichloropropane		2.0				45.6	50.00	0	91.3		46.10	1.02	09/05/2019
1,3,5-Trimethylbenzene		2.0				46.5	50.00	0	93.0		47.54	2.23	09/05/2019
1,3-Dichlorobenzene		2.0				45.4	50.00	0	90.9		46.27	1.79	09/05/2019
1,3-Dichloropropane		2.0				46.1	50.00	0	92.2		46.33	0.48	09/05/2019
1,4-Dichlorobenzene		2.0				44.7	50.00	0	89.4		45.62	2.01	09/05/2019
1-Chlorobutane		5.0				48.4	50.00	0	96.7		50.59	4.53	09/05/2019
2,2-Dichloropropane		2.0				50.3	50.00	0	100.6		52.88	4.98	09/05/2019
2-Butanone		10.0				115	125.0	0	92.1		119.1	3.45	09/05/2019
2-Chloroethyl vinyl ether		5.0				46.3	50.00	0	92.7		47.26	1.99	09/05/2019
2-Chlorotoluene		2.0				45.8	50.00	0	91.6		47.08	2.78	09/05/2019
2-Hexanone		10.0				114	125.0	0	91.3		116.7	2.24	09/05/2019
2-Nitropropane		10.0				488	500.0	0	97.6		498.5	2.18	09/05/2019
4-Chlorotoluene		2.0				45.9	50.00	0	91.8		47.15	2.71	09/05/2019
4-Methyl-2-pentanone		10.0				115	125.0	0	92.1		117.9	2.35	09/05/2019
Acetone		10.0				113	125.0	0	90.7		114.1	0.58	09/05/2019
Acetonitrile		10.0				437	500.0	0	87.4		476.8	8.67	09/05/2019
Acrolein		20.0				472	500.0	0	94.4		489.5	3.68	09/05/2019
Acrylonitrile		5.0				47.3	50.00	0	94.6		48.93	3.43	09/05/2019
Allyl chloride		5.0				48.3	50.00	0	96.7		49.87	3.14	09/05/2019
Benzene		0.5				44.8	50.00	0	89.5		45.96	2.67	09/05/2019
Bromobenzene		2.0				45.9	50.00	0	91.8		46.91	2.22	09/05/2019
Bromochloromethane		2.0				46.0	50.00	0	92.1		46.66	1.32	09/05/2019
Bromodichloromethane		2.0				47.9	50.00	0	95.8		48.58	1.37	09/05/2019
Bromoform		2.0				49.0	50.00	0	98.0		49.02	0.08	09/05/2019
Bromomethane		5.0				53.8	50.00	0	107.5		52.75	1.90	09/05/2019
Carbon disulfide		2.0				44.6	50.00	0	89.2		46.75	4.75	09/05/2019
Carbon tetrachloride		2.0				48.0	50.00	0	96.0		50.07	4.18	09/05/2019
Chlorobenzene		2.0				45.7	50.00	0	91.3		46.58	1.97	09/05/2019
Chloroethane		2.0				49.0	50.00	0	97.9		50.34	2.78	09/05/2019

Quality Control Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch	156991	SampType	LCSD	Units	µg/L	RPD Limit 40									Date Analyzed
				Sample ID:	LCSD-AE190905A-1	Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	
Chloroform				2.0		46.9	50.00	0	93.8		47.82		1.99		09/05/2019
Chloromethane				5.0		43.3	50.00	0	86.7		45.18		4.18		09/05/2019
Chloroprene				5.0		47.3	50.00	0	94.5		49.34		4.29		09/05/2019
cis-1,2-Dichloroethene				2.0		46.6	50.00	0	93.1		48.58		4.22		09/05/2019
cis-1,3-Dichloropropene				2.0		47.9	50.00	0	95.9		48.62		1.41		09/05/2019
cis-1,4-Dichloro-2-butene				2.0		49.5	50.00	0	99.0		50.81		2.65		09/05/2019
Cyclohexanone				20.0		44.3	500.0	0	88.6		454.5		2.61		09/05/2019
Dibromochloromethane				2.0		48.3	50.00	0	96.6		48.76		0.97		09/05/2019
Dibromomethane				2.0		46.6	50.00	0	93.2		47.17		1.24		09/05/2019
Dichlorodifluoromethane				2.0		48.0	50.00	0	96.1		51.51		6.95		09/05/2019
Ethyl acetate				10.0		44.5	50.00	0	89.0		45.38		1.91		09/05/2019
Ethyl ether				5.0		47.6	50.00	0	95.1		48.47		1.90		09/05/2019
Ethyl methacrylate				5.0		47.9	50.00	0	95.8		48.10		0.37		09/05/2019
Ethylbenzene				2.0		45.4	50.00	0	90.8		46.76		2.93		09/05/2019
Hexachlorobutadiene				5.0		50.9	50.00	0	101.7		53.50		5.06		09/05/2019
Hexachloroethane				5.0		50.5	50.00	0	100.9		52.58		4.10		09/05/2019
Iodomethane				5.0		48.7	50.00	0	97.4		49.78		2.21		09/05/2019
Isopropylbenzene				2.0		46.0	50.00	0	92.0		47.42		3.02		09/05/2019
m,p-Xylenes				2.0		91.2	100.0	0	91.2		93.86		2.87		09/05/2019
Methacrylonitrile				5.0		47.2	50.00	0	94.4		48.76		3.21		09/05/2019
Methyl Methacrylate				5.0		46.8	50.00	0	93.6		48.11		2.80		09/05/2019
Methyl tert-butyl ether				2.0		47.7	50.00	0	95.5		48.46		1.50		09/05/2019
Methylacrylate				5.0		48.7	50.00	0	97.4		49.89		2.39		09/05/2019
Methylene chloride				10.0		44.4	50.00	0	88.9		45.58		2.51		09/05/2019
Naphthalene				5.0		46.6	50.00	0	93.2		47.06		1.03		09/05/2019
n-Butyl acetate				2.0		46.1	50.00	0	92.2		46.40		0.63		09/05/2019
n-Butylbenzene				2.0		45.5	50.00	0	91.0		47.66		4.64		09/05/2019
n-Heptane				5.0		51.0	50.00	0	101.9		54.37		6.46		09/05/2019
n-Hexane				5.0		49.8	50.00	0	99.5		52.80		5.93		09/05/2019
Nitrobenzene				50.0		438	500.0	0	87.6		454.3		3.63		09/05/2019
n-Propylbenzene				2.0		46.3	50.00	0	92.7		48.00		3.54		09/05/2019
o-Xylene				2.0		45.8	50.00	0	91.6		46.63		1.75		09/05/2019
Pentachloroethane				5.0		50.1	50.00	0	100.2		50.61		1.03		09/05/2019
p-Isopropyltoluene				2.0		46.6	50.00	0	93.2		48.39		3.81		09/05/2019
Propionitrile				10.0		464	500.0	0	92.9		482.4		3.81		09/05/2019
sec-Butylbenzene				2.0		46.8	50.00	0	93.5		48.34		3.30		09/05/2019
Styrene				2.0		46.9	50.00	0	93.8		47.36		0.93		09/05/2019
tert-Butylbenzene				2.0		46.6	50.00	0	93.2		48.54		4.12		09/05/2019
Tetrachloroethene				0.5		45.4	50.00	0	90.9		46.95		3.29		09/05/2019
Tetrahydrofuran				5.0		41.3	50.00	0	82.6		42.38		2.56		09/05/2019
Toluene				2.0		45.2	50.00	0	90.4		46.36		2.49		09/05/2019
trans-1,2-Dichloroethene				2.0		49.3	50.00	0	98.5		51.30		4.06		09/05/2019
trans-1,3-Dichloropropene				2.0		48.4	50.00	0	96.9		48.82		0.78		09/05/2019
trans-1,4-Dichloro-2-butene				2.0		49.6	50.00	0	99.1		51.00		2.86		09/05/2019
Trichloroethene				2.0		46.0	50.00	0	92.0		47.90		4.07		09/05/2019
Trichlorofluoromethane				5.0		48.9	50.00	0	97.8		51.98		6.07		09/05/2019
Vinyl acetate				5.0		48.8	50.00	0	97.5		49.96		2.45		09/05/2019



Quality Control Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch	156991	SampType	LCSD	Units	µg/L	RPD Limit 40						
SampID: LCSD-AE190905A-1								Date Analyzed				
Analyses		RL	Qual	Result	Spike	SPK	Ref Val	%REC	RPD	Ref Val	%RPD	Date Analyzed
Vinyl chloride		2.0		46.6	50.00	0	93.3		49.01		4.98	09/05/2019
Surr: 1,2-Dichloroethane-d4				49.2	50.00		98.3					09/05/2019
Surr: 4-Bromofluorobenzene				50.1	50.00		100.2					09/05/2019
Surr: Dibromofluoromethane				49.7	50.00		99.3					09/05/2019
Surr: Toluene-d8				49.9	50.00		99.8					09/05/2019

Receiving Check List

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19090116

Client Project: Hayford Bridge J006295.07

Report Date: 10-Sep-2019

Carrier: Jacob Wilson

Received By: KMT

Completed by:

On:

03-Sep-2019

Amber Dilallo

Amber M. Dilallo

Reviewed by:

On:

03-Sep-2019

Elizabeth A. Hurley

Elizabeth A. Hurley

Pages to follow: Chain of custody

Extra pages included

Not Present

Temp °C **4.0**

Blue Ice

Dry Ice

Shipping container/cooler in good condition?

Yes

No

Type of thermal preservation?

None

Ice

Chain of custody present?

Yes

No

Chain of custody signed when relinquished and received?

Yes

No

Chain of custody agrees with sample labels?

Yes

No

Samples in proper container/bottle?

Yes

No

Sample containers intact?

Yes

No

Sufficient sample volume for indicated test?

Yes

No

All samples received within holding time?

Yes

No

Reported field parameters measured:

Field

Lab

NA

Sample analyses to be measured in the field and/or within 15 minutes of collection were analyzed in the lab as soon as practicable. These analyses include Chlorine (demand, free and/or residual), Carbon Dioxide, Dissolved Oxygen, Ferrous Iron, pH, and Sulfite.

Container/Temp Blank temperature in compliance?

Yes

No

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water – at least one vial per sample has zero headspace?

Yes

No

No VOA vials

Water - TOX containers have zero headspace?

Yes

No

No TOX containers

Water - pH acceptable upon receipt?

Yes

No

NA

NPDES/CWA TCN interferences checked/treated in the field?

Yes

No

NA

Any No responses must be detailed below or on the COC.

Samples were filtered and preserved with Sulfuric Acid (69969) for the dissolved parameters upon arrival at the laboratory. - adilallo - 9/3/2019 4:45:32 PM

Headspace was present in four of the MW-C15 volatile vials. - KT/ehurley - 9/3/2019 5:12:11 PM

CHAIN OF CUSTODY

pg. ____ of ____ Work order # 19090116

TEKLAB, INC. 5445 Horseshoe Lake Road - Collinsville, IL 62234 - Phone: (618) 344-1004 - Fax: (618) 344-1005

Client:	Geotechnology, Inc.		
Address:	11816 Lackland Road		
City / State / Zip	St. Louis, MO 63146		
Contact:	Kenny Hemmen	Phone:	(314) 997-7440
E-Mail:	khemmen@geotechnology.com		
Fax:	(314) 997-2067		

Are these samples known to be involved in litigation? If yes, a surcharge will apply Yes No

Are these samples known to be hazardous? Yes No

Are there any required reporting limits to be met on the requested analysis? If yes, please provide limits in the comment section. Yes No

Samples on: ICE BLUE ICE NO ICE 4.0 °C LTG3

Preserved in: LAB FIELD FOR LAB USE ONLY

Lab Notes OL HS in lot 3 MW C15 RSK/Hs in remaining
OL HS in lot 2 MW C14 and MW C3 1/2 of 3 MW C15 Hs in remaining

Client Comments:

Courier

Project Name/Number		Sample Collector's Name			MATRIX						INDICATE ANALYSIS REQUESTED							
Hayford Bridge J006295.07		Wayne Holtzman			UNPRES	Groundwater	Special Waste	Sludge	Soil	Aqueous	1,4-Dioxane	Chloride	CO ₂	Ferrous Iron	Nitrate	Sulfate	VOC 8260	TOC (D)
<input checked="" type="checkbox"/> Standard <input type="checkbox"/> 1-2 Day (100% Surcharge) <input type="checkbox"/> Other <input type="checkbox"/> 3 Day (50% Surcharge)		Billing Instructions J006295.07.02																
Lab Use Only	Sample Identification	Date/Time Sampled			NaOH	HNO ₃	H ₂ SO ₄	HCl	MeOH	NaHSO ₄	OTHER							
19090116	MW-C14	8-30-19 9:45			3	1	6					X	X	V	X	X	X	X
002	MW-C15	8-30-19 10:25			3	1	6					+	X	X	X	X	X	X
003	MW-C3	8-30-19 12:40			3	1	6					X	X	X	X	X	X	
004	MW-C4	8-30-19 13:25			3	1	6					X	X	V	X	X	X	
005	MW-C11	8-30-19 14:50			3	1	6					X	V	A	X	X	X	
Relinquished By				Date/Time				Received By				Date/Time						
				9-3-19 12:30pm								9/3/19 14:13						
				9/3/19 1535								9/3/19 1535						

The individual signing this agreement on behalf of the client, acknowledges that he/she has read and understands the terms and conditions of this agreement, and that he/she has the authority to sign on behalf of the client. See www.teklabinc.com for terms and conditions.

BottleOrder: 52768



9/3/19

September 19, 2019

Kenny Hemmen
Geotechnology, Inc.
11816 Lackland Road
St. Louis, MO 63146
TEL: (314) 997-7440
FAX: (314) 997-2067



RE: Hayford Bridge J006295.07

WorkOrder: 19082090

Dear Kenny Hemmen:

TEKLAB, INC received 8 samples on 8/30/2019 3:50:00 PM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,



Emily Pohlman
Project Manager
(618)344-1004 ex 44
epohlman@teklabinc.com

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

This reporting package includes the following:

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Dates Report	31
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Chain of Custody	Appended

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

Abbr Definition

* Analytes on report marked with an asterisk are not NELAP accredited

CCV Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.

CRQL A Client Requested Quantitation Limit is a reporting limit that varies according to customer request. The CRQL may not be less than the MDL.

DF Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilution factors.

DNI Did not ignite

DUP Laboratory duplicate is a replicate aliquot prepared under the same laboratory conditions and independently analyzed to obtain a measure of precision.

ICV Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.

IDPH IL Dept. of Public Health

LCS Laboratory control sample is a sample matrix, free from the analytes of interest,spiked with verified known amounts of analytes and analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system.

LCSD Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).

MBLK Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.

MDL "The method detection limit is defined as the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results."

MS Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).

MSD Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).

MW Molecular weight

ND Not Detected at the Reporting Limit

NELAP NELAP Accredited

PQL Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions.

RL The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.

RPD Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).

SPK The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.

Surrogate Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.

TIC Tentatively identified compound: Analytes tentatively identified in the sample by using a library search. Only results not in the calibration standard will be reported as tentatively identified compounds. Results for tentatively identified compounds that are not present in the calibration standard, but are assigned a specific chemical name based upon the library search, are calculated using total peak areas from reconstructed ion chromatograms and a response factor of one. The nearest Internal Standard is used for the calculation. The results of any TICs must be considered estimated, and are flagged with a "T". If the estimated result is above the calibration range it is flagged "ET"

TNTC Too numerous to count (> 200 CFU)

Qualifiers

- Unknown hydrocarbon

B - Analyte detected in associated Method Blank

C - RL shown is a Client Requested Quantitation Limit

E - Value above quantitation range

H - Holding times exceeded

I - Associated internal standard was outside method criteria

J - Analyte detected below quantitation limits

M - Manual Integration used to determine area response

ND - Not Detected at the Reporting Limit

R - RPD outside accepted recovery limits

S - Spike Recovery outside recovery limits

T - TIC(Tentatively identified compound)

X - Value exceeds Maximum Contaminant Level



Case Narrative

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

Cooler Receipt Temp: 4.0 °C

This report was revised on 9/19/19 per Kenny Hemmen's request. The reason for the revision is to report the sample collected at 9:20 AM as MW-C8 and to report the sample collected at 10:50 AM as MW-C7. Please replace report dated 9/10/19 with this report. EEP 9/19/19

Locations

Collinsville	
Address	5445 Horseshoe Lake Road Collinsville, IL 62234-7425
Phone	(618) 344-1004
Fax	(618) 344-1005
Email	jhriley@teklabinc.com

Springfield	
Address	3920 Pintail Dr Springfield, IL 62711-9415
Phone	(217) 698-1004
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Email	KKlostermann@teklabinc.com

Kansas City	
Address	8421 Nieman Road Lenexa, KS 66214
Phone	(913) 541-1998
Fax	(913) 541-1998
Email	jhriley@teklabinc.com

Collinsville Air	
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Phone	(618) 344-1004
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Chicago	
Address	1319 Butterfield Rd. Downers Grove, IL 60515
Phone	(630) 324-6855
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Email	arenner@teklabinc.com

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2020	Collinsville
Kansas	KDHE	E-10374	NELAP	4/30/2020	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2020	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2020	Collinsville
Oklahoma	ODEQ	9978	NELAP	8/31/2020	Collinsville
Arkansas	ADEQ	88-0966		3/14/2020	Collinsville
Illinois	IDPH	17584		5/31/2021	Collinsville
Indiana	ISDH	C-IL-06		1/31/2020	Collinsville
Kentucky	KDEP	98006		12/31/2019	Collinsville
Kentucky	UST	0073		1/31/2020	Collinsville
Louisiana	LDPH	LA016		12/31/2019	Collinsville
Missouri	MDNR	930		1/31/2022	Collinsville
Missouri	MDNR	00930		5/31/2019	Collinsville
Tennessee	TDEC	04905		1/31/2020	Collinsville

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

Lab ID: 19082090-001

Client Sample ID: MW-C16

Matrix: GROUNDWATER

Collection Date: 08/26/2019 13:35

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 353.2 R2.0 (TOTAL)								
Nitrogen, Nitrate (as N)	NELAP	0.050	J	0.043	mg/L	1	09/04/2019 16:50	R266550
EPA 600 375.2 REV 2.0 1993 (TOTAL)								
Sulfate	NELAP	20		58	mg/L	2	09/05/2019 17:59	R266501
SM-3500-FE D, LABORATORY ANALYZED								
Lab Ferrous Iron	*	0.20		4.2	mg/L	10	09/10/2019 11:25	R266668
STANDARD METHODS 4500-CL E (TOTAL) 1997								
Chloride	NELAP	8		21	mg/L	2	09/05/2019 18:00	R266526
STANDARD METHODS 4500-CO2 C, LABORATORY ANALYZED								
Lab Free Carbon Dioxide as CO2	*	0		21.9	mg/L	1	09/03/2019 15:24	R266464
STANDARD METHODS 5310 C, ORGANIC CARBON								
Dissolved Organic Carbon	NELAP	1.0		1.2	mg/L	1	09/03/2019 17:13	R266410
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		ND	µg/L	1	09/03/2019 13:02	R266415
Ethene	*	10.0		ND	µg/L	1	09/03/2019 13:02	R266415
Methane	*	40.0		169	µg/L	10	09/03/2019 14:04	R266415
SW-846 3510C,8270C, SEMI-VOLATILE ORGANIC COMPOUNDS								
1,4-Dioxane	*	0.0010	JH	0.00086	mg/L	1	09/04/2019 16:43	156900
Surr: 2-Fluorobiphenyl	*	21.4-142	H	46.5	%REC	1	09/04/2019 16:43	156900
Surr: Nitrobenzene-d5	*	15-163	H	46.8	%REC	1	09/04/2019 16:43	156900
Surr: p-Terphenyl-d14	*	10-173	H	80.9	%REC	1	09/04/2019 16:43	156900
Sample extraction did not meet hold time requirements.								
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
1,1,1-Trichloroethane	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
1,1,2,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
1,1,2-Trichloro-1,2,2-trifluoroethane	*	5.0		ND	µg/L	1	09/03/2019 18:37	156936
1,1,2-Trichloroethane	NELAP	0.5		ND	µg/L	1	09/03/2019 18:37	156936
1,1-Dichloro-2-propanone	*	30.0		ND	µg/L	1	09/03/2019 18:37	156936
1,1-Dichloroethane	NELAP	2.0	J	0.5	µg/L	1	09/03/2019 18:37	156936
1,1-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
1,1-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
1,2,3-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
1,2,3-Trichloropropane	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
1,2,3-Trimethylbenzene	*	2.0		ND	µg/L	1	09/03/2019 18:37	156936
1,2,4-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
1,2,4-Trimethylbenzene	NELAP	2.0	J	0.1	µg/L	1	09/03/2019 18:37	156936
1,2-Dibromo-3-chloropropane	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
1,2-Dibromoethane	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
1,2-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
1,2-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
1,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
1,3,5-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
1,3-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
1,3-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
1,4-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
1-Chlorobutane	NELAP	5.0		ND	µg/L	1	09/03/2019 18:37	156936

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

Lab ID: 19082090-001

Client Sample ID: MW-C16

Matrix: GROUNDWATER

Collection Date: 08/26/2019 13:35

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
2,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
2-Butanone	NELAP	10.0		ND	µg/L	1	09/03/2019 18:37	156936
2-Chloroethyl vinyl ether	NELAP	5.0		ND	µg/L	1	09/03/2019 18:37	156936
2-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
2-Hexanone	NELAP	10.0		ND	µg/L	1	09/03/2019 18:37	156936
2-Nitropropane	NELAP	10.0		ND	µg/L	1	09/03/2019 18:37	156936
4-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
4-Methyl-2-pentanone	NELAP	10.0		ND	µg/L	1	09/03/2019 18:37	156936
Acetone	NELAP	10	J	4.6	µg/L	1	09/03/2019 18:37	156936
Acetonitrile	NELAP	10.0		ND	µg/L	1	09/03/2019 18:37	156936
Acrolein	NELAP	20.0		ND	µg/L	1	09/03/2019 18:37	156936
Acrylonitrile	NELAP	5.0		ND	µg/L	1	09/03/2019 18:37	156936
Allyl chloride	NELAP	5.0		ND	µg/L	1	09/03/2019 18:37	156936
Benzene	NELAP	0.5		ND	µg/L	1	09/03/2019 18:37	156936
Bromobenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
Bromochloromethane	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
Bromodichloromethane	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
Bromoform	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
Bromomethane	NELAP	5.0		ND	µg/L	1	09/03/2019 18:37	156936
Carbon disulfide	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
Carbon tetrachloride	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
Chlorobenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
Chloroethane	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
Chloroform	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
Chloromethane	NELAP	5.0		ND	µg/L	1	09/03/2019 18:37	156936
Chloroprene	NELAP	5.0		ND	µg/L	1	09/03/2019 18:37	156936
cis-1,2-Dichloroethene	NELAP	2.0	J	1.7	µg/L	1	09/03/2019 18:37	156936
cis-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
cis-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
Cyclohexanone	*	20.0		ND	µg/L	1	09/03/2019 18:37	156936
Dibromochloromethane	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
Dibromomethane	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
Dichlorodifluoromethane	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
Ethyl acetate	NELAP	10.0		ND	µg/L	1	09/03/2019 18:37	156936
Ethyl ether	NELAP	5.0		ND	µg/L	1	09/03/2019 18:37	156936
Ethyl methacrylate	NELAP	5.0		ND	µg/L	1	09/03/2019 18:37	156936
Ethylbenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
Hexachlorobutadiene	NELAP	5.0		ND	µg/L	1	09/03/2019 18:37	156936
Hexachloroethane	NELAP	5.0		ND	µg/L	1	09/03/2019 18:37	156936
Iodomethane	NELAP	5.0		ND	µg/L	1	09/03/2019 18:37	156936
Isopropylbenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
m,p-Xylenes	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
Methacrylonitrile	NELAP	5.0		ND	µg/L	1	09/03/2019 18:37	156936
Methyl Methacrylate	NELAP	5.0		ND	µg/L	1	09/03/2019 18:37	156936
Methyl tert-butyl ether	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
Methylacrylate	NELAP	5.0		ND	µg/L	1	09/03/2019 18:37	156936
Methylene chloride	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

Lab ID: 19082090-001

Client Sample ID: MW-C16

Matrix: GROUNDWATER

Collection Date: 08/26/2019 13:35

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
Naphthalene	NELAP	5.0		ND	µg/L	1	09/03/2019 18:37	156936
n-Butyl acetate	*	2.0		ND	µg/L	1	09/03/2019 18:37	156936
n-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
n-Heptane	*	5.0		ND	µg/L	1	09/03/2019 18:37	156936
n-Hexane	*	5.0		ND	µg/L	1	09/03/2019 18:37	156936
Nitrobenzene	NELAP	50.0		ND	µg/L	1	09/03/2019 18:37	156936
n-Propylbenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
o-Xylene	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
Pentachloroethane	NELAP	5.0		ND	µg/L	1	09/03/2019 18:37	156936
p-Isopropyltoluene	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
Propionitrile	NELAP	10.0		ND	µg/L	1	09/03/2019 18:37	156936
sec-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
Styrene	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
tert-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
Tetrachloroethene	NELAP	0.5		ND	µg/L	1	09/03/2019 18:37	156936
Tetrahydrofuran	NELAP	5.0		ND	µg/L	1	09/03/2019 18:37	156936
Toluene	NELAP	2.0		2.2	µg/L	1	09/03/2019 18:37	156936
trans-1,2-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
trans-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
trans-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
Trichloroethene	NELAP	2.0		ND	µg/L	1	09/03/2019 18:37	156936
Trichlorofluoromethane	NELAP	5.0		ND	µg/L	1	09/03/2019 18:37	156936
Vinyl acetate	NELAP	5.0		ND	µg/L	1	09/03/2019 18:37	156936
Vinyl chloride	NELAP	2.0		3.2	µg/L	1	09/03/2019 18:37	156936
Surr: 1,2-Dichloroethane-d4	*	79.6-118		87.8	%REC	1	09/03/2019 18:37	156936
Surr: 4-Bromofluorobenzene	*	83.9-115		94.3	%REC	1	09/03/2019 18:37	156936
Surr: Dibromofluoromethane	*	84.9-113		94.2	%REC	1	09/03/2019 18:37	156936
Surr: Toluene-d8	*	86.7-112		95.7	%REC	1	09/03/2019 18:37	156936

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

Lab ID: 19082090-002

Client Sample ID: MW-C17

Matrix: GROUNDWATER

Collection Date: 08/26/2019 15:10

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 353.2 R2.0 (TOTAL)								
Nitrogen, Nitrate (as N)	NELAP	0.050	J	0.038	mg/L	1	09/04/2019 16:52	R266550
EPA 600 375.2 REV 2.0 1993 (TOTAL)								
Sulfate	NELAP	10		< 10	mg/L	1	09/05/2019 18:02	R266501
SM-3500-FE D, LABORATORY ANALYZED								
Lab Ferrous Iron	*	0.20		7.8	mg/L	10	09/10/2019 11:27	R266668
STANDARD METHODS 4500-CL E (TOTAL) 1997								
Chloride	NELAP	4		15	mg/L	1	09/05/2019 18:02	R266526
STANDARD METHODS 4500-CO2 C, LABORATORY ANALYZED								
Lab Free Carbon Dioxide as CO2	*	0		35.7	mg/L	1	09/03/2019 15:24	R266464
STANDARD METHODS 5310 C, ORGANIC CARBON								
Dissolved Organic Carbon	NELAP	1.0		2.0	mg/L	1	09/03/2019 17:19	R266410
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		ND	µg/L	1	09/03/2019 13:22	R266415
Ethene	*	10.0		ND	µg/L	1	09/03/2019 13:22	R266415
Methane	*	40.0		201	µg/L	10	09/03/2019 14:34	R266415
SW-846 3510C,8270C, SEMI-VOLATILE ORGANIC COMPOUNDS								
1,4-Dioxane	*	0.00100	H	0.00147	mg/L	1	09/04/2019 17:22	156900
Surr: 2-Fluorobiphenyl	*	21.4-142	H	53.1	%REC	1	09/04/2019 17:22	156900
Surr: Nitrobenzene-d5	*	15-163	H	55.2	%REC	1	09/04/2019 17:22	156900
Surr: p-Terphenyl-d14	*	10-173	H	73.9	%REC	1	09/04/2019 17:22	156900
Sample extraction did not meet hold time requirements.								
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
1,1,1-Trichloroethane	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
1,1,2,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
1,1,2-Trichloro-1,2,2-trifluoroethane	*	5.0		ND	µg/L	1	09/03/2019 19:04	156936
1,1,2-Trichloroethane	NELAP	0.5		ND	µg/L	1	09/03/2019 19:04	156936
1,1-Dichloro-2-propanone	*	30.0		ND	µg/L	1	09/03/2019 19:04	156936
1,1-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
1,1-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
1,1-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
1,2,3-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
1,2,3-Trichloropropane	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
1,2,3-Trimethylbenzene	*	2.0		ND	µg/L	1	09/03/2019 19:04	156936
1,2,4-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
1,2,4-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
1,2-Dibromo-3-chloropropane	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
1,2-Dibromoethane	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
1,2-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
1,2-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
1,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
1,3,5-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
1,3-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
1,3-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
1,4-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
1-Chlorobutane	NELAP	5.0		ND	µg/L	1	09/03/2019 19:04	156936

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

Lab ID: 19082090-002

Client Sample ID: MW-C17

Matrix: GROUNDWATER

Collection Date: 08/26/2019 15:10

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
2,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
2-Butanone	NELAP	10.0		ND	µg/L	1	09/03/2019 19:04	156936
2-Chloroethyl vinyl ether	NELAP	5.0		ND	µg/L	1	09/03/2019 19:04	156936
2-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
2-Hexanone	NELAP	10.0		ND	µg/L	1	09/03/2019 19:04	156936
2-Nitropropane	NELAP	10.0		ND	µg/L	1	09/03/2019 19:04	156936
4-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
4-Methyl-2-pentanone	NELAP	10.0		ND	µg/L	1	09/03/2019 19:04	156936
Acetone	NELAP	10	J	5.6	µg/L	1	09/03/2019 19:04	156936
Acetonitrile	NELAP	10.0		ND	µg/L	1	09/03/2019 19:04	156936
Acrolein	NELAP	20.0		ND	µg/L	1	09/03/2019 19:04	156936
Acrylonitrile	NELAP	5.0		ND	µg/L	1	09/03/2019 19:04	156936
Allyl chloride	NELAP	5.0		ND	µg/L	1	09/03/2019 19:04	156936
Benzene	NELAP	0.5		ND	µg/L	1	09/03/2019 19:04	156936
Bromobenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
Bromochloromethane	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
Bromodichloromethane	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
Bromoform	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
Bromomethane	NELAP	5.0		ND	µg/L	1	09/03/2019 19:04	156936
Carbon disulfide	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
Carbon tetrachloride	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
Chlorobenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
Chloroethane	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
Chloroform	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
Chloromethane	NELAP	5.0		ND	µg/L	1	09/03/2019 19:04	156936
Chloroprene	NELAP	5.0		ND	µg/L	1	09/03/2019 19:04	156936
cis-1,2-Dichloroethene	NELAP	2.0	J	0.9	µg/L	1	09/03/2019 19:04	156936
cis-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
cis-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
Cyclohexanone	*	20.0		ND	µg/L	1	09/03/2019 19:04	156936
Dibromochloromethane	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
Dibromomethane	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
Dichlorodifluoromethane	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
Ethyl acetate	NELAP	10.0		ND	µg/L	1	09/03/2019 19:04	156936
Ethyl ether	NELAP	5.0		ND	µg/L	1	09/03/2019 19:04	156936
Ethyl methacrylate	NELAP	5.0		ND	µg/L	1	09/03/2019 19:04	156936
Ethylbenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
Hexachlorobutadiene	NELAP	5.0		ND	µg/L	1	09/03/2019 19:04	156936
Hexachloroethane	NELAP	5.0		ND	µg/L	1	09/03/2019 19:04	156936
Iodomethane	NELAP	5.0		ND	µg/L	1	09/03/2019 19:04	156936
Isopropylbenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
m,p-Xylenes	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
Methacrylonitrile	NELAP	5.0		ND	µg/L	1	09/03/2019 19:04	156936
Methyl Methacrylate	NELAP	5.0		ND	µg/L	1	09/03/2019 19:04	156936
Methyl tert-butyl ether	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
Methylacrylate	NELAP	5.0		ND	µg/L	1	09/03/2019 19:04	156936
Methylene chloride	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

Lab ID: 19082090-002

Client Sample ID: MW-C17

Matrix: GROUNDWATER

Collection Date: 08/26/2019 15:10

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
Naphthalene	NELAP	5.0		ND	µg/L	1	09/03/2019 19:04	156936
n-Butyl acetate	*	2.0		ND	µg/L	1	09/03/2019 19:04	156936
n-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
n-Heptane	*	5.0		ND	µg/L	1	09/03/2019 19:04	156936
n-Hexane	*	5.0		ND	µg/L	1	09/03/2019 19:04	156936
Nitrobenzene	NELAP	50.0		ND	µg/L	1	09/03/2019 19:04	156936
n-Propylbenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
o-Xylene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
Pentachloroethane	NELAP	5.0		ND	µg/L	1	09/03/2019 19:04	156936
p-Isopropyltoluene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
Propionitrile	NELAP	10.0		ND	µg/L	1	09/03/2019 19:04	156936
sec-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
Styrene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
tert-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
Tetrachloroethene	NELAP	0.5		ND	µg/L	1	09/03/2019 19:04	156936
Tetrahydrofuran	NELAP	5.0		ND	µg/L	1	09/03/2019 19:04	156936
Toluene	NELAP	2.0		14.2	µg/L	1	09/03/2019 19:04	156936
trans-1,2-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
trans-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
trans-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
Trichloroethene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:04	156936
Trichlorofluoromethane	NELAP	5.0		ND	µg/L	1	09/03/2019 19:04	156936
Vinyl acetate	NELAP	5.0		ND	µg/L	1	09/03/2019 19:04	156936
Vinyl chloride	NELAP	2.0		2.6	µg/L	1	09/03/2019 19:04	156936
Surr: 1,2-Dichloroethane-d4	*	79.6-118		85.2	%REC	1	09/03/2019 19:04	156936
Surr: 4-Bromofluorobenzene	*	83.9-115		95.8	%REC	1	09/03/2019 19:04	156936
Surr: Dibromofluoromethane	*	84.9-113		93.9	%REC	1	09/03/2019 19:04	156936
Surr: Toluene-d8	*	86.7-112		98.3	%REC	1	09/03/2019 19:04	156936

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

Lab ID: 19082090-003

Client Sample ID: MW-C2

Matrix: GROUNDWATER

Collection Date: 08/27/2019 12:27

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 353.2 R2.0 (TOTAL)								
Nitrogen, Nitrate (as N)	NELAP	0.050	J	0.041	mg/L	1	09/04/2019 16:56	R266550
EPA 600 375.2 REV 2.0 1993 (TOTAL)								
Sulfate	NELAP	10		24	mg/L	1	09/05/2019 18:05	R266501
SM-3500-FE D, LABORATORY ANALYZED								
Lab Ferrous Iron	*	0.20		7.4	mg/L	10	09/10/2019 11:28	R266668
STANDARD METHODS 4500-CL E (TOTAL) 1997								
Chloride	NELAP	4		19	mg/L	1	09/05/2019 18:05	R266526
STANDARD METHODS 4500-CO2 C, LABORATORY ANALYZED								
Lab Free Carbon Dioxide as CO2	*	0		24.4	mg/L	1	09/03/2019 15:24	R266464
STANDARD METHODS 5310 C, ORGANIC CARBON								
Dissolved Organic Carbon	NELAP	1.0		1.9	mg/L	1	09/03/2019 17:58	R266410
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		ND	µg/L	1	09/03/2019 13:33	R266415
Ethene	*	10.0		ND	µg/L	1	09/03/2019 13:33	R266415
Methane	*	4.0		19.2	µg/L	1	09/03/2019 13:33	R266415
SW-846 3510C,8270C, SEMI-VOLATILE ORGANIC COMPOUNDS								
1,4-Dioxane	*	0.00100		ND	mg/L	1	09/04/2019 18:00	156900
Surr: 2-Fluorobiphenyl	*	21.4-142		55.6	%REC	1	09/04/2019 18:00	156900
Surr: Nitrobenzene-d5	*	15-163		61.3	%REC	1	09/04/2019 18:00	156900
Surr: p-Terphenyl-d14	*	10-173		79.6	%REC	1	09/04/2019 18:00	156900
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
1,1,1-Trichloroethane	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
1,1,2,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
1,1,2-Trichloro-1,2,2-trifluoroethane	*	5.0		ND	µg/L	1	09/03/2019 19:32	156936
1,1,2-Trichloroethane	NELAP	0.5		ND	µg/L	1	09/03/2019 19:32	156936
1,1-Dichloro-2-propanone	*	30.0		ND	µg/L	1	09/03/2019 19:32	156936
1,1-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
1,1-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
1,1-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
1,2,3-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
1,2,3-Trichloropropane	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
1,2,3-Trimethylbenzene	*	2.0		ND	µg/L	1	09/03/2019 19:32	156936
1,2,4-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
1,2,4-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
1,2-Dibromo-3-chloropropane	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
1,2-Dibromoethane	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
1,2-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
1,2-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
1,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
1,3,5-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
1,3-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
1,3-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
1,4-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
1-Chlorobutane	NELAP	5.0		ND	µg/L	1	09/03/2019 19:32	156936
2,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

Lab ID: 19082090-003

Client Sample ID: MW-C2

Matrix: GROUNDWATER

Collection Date: 08/27/2019 12:27

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
2-Butanone	NELAP	10.0		ND	µg/L	1	09/03/2019 19:32	156936
2-Chloroethyl vinyl ether	NELAP	5.0		ND	µg/L	1	09/03/2019 19:32	156936
2-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
2-Hexanone	NELAP	10.0		ND	µg/L	1	09/03/2019 19:32	156936
2-Nitropropane	NELAP	10.0		ND	µg/L	1	09/03/2019 19:32	156936
4-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
4-Methyl-2-pentanone	NELAP	10.0		ND	µg/L	1	09/03/2019 19:32	156936
Acetone	NELAP	10	J	5.4	µg/L	1	09/03/2019 19:32	156936
Acetonitrile	NELAP	10.0		ND	µg/L	1	09/03/2019 19:32	156936
Acrolein	NELAP	20.0		ND	µg/L	1	09/03/2019 19:32	156936
Acrylonitrile	NELAP	5.0		ND	µg/L	1	09/03/2019 19:32	156936
Allyl chloride	NELAP	5.0		ND	µg/L	1	09/03/2019 19:32	156936
Benzene	NELAP	0.5		ND	µg/L	1	09/03/2019 19:32	156936
Bromobenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
Bromoform	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
Bromomethane	NELAP	5.0		ND	µg/L	1	09/03/2019 19:32	156936
Carbon disulfide	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
Carbon tetrachloride	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
Chlorobenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
Chloroethane	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
Chloroform	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
Chloromethane	NELAP	5.0		ND	µg/L	1	09/03/2019 19:32	156936
Chloroprene	NELAP	5.0		ND	µg/L	1	09/03/2019 19:32	156936
cis-1,2-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
cis-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
cis-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
Cyclohexanone	*	20.0		ND	µg/L	1	09/03/2019 19:32	156936
Dibromochloromethane	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
Dibromomethane	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
Dichlorodifluoromethane	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
Ethyl acetate	NELAP	10.0		ND	µg/L	1	09/03/2019 19:32	156936
Ethyl ether	NELAP	5.0		ND	µg/L	1	09/03/2019 19:32	156936
Ethyl methacrylate	NELAP	5.0		ND	µg/L	1	09/03/2019 19:32	156936
Ethylbenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
Hexachlorobutadiene	NELAP	5.0		ND	µg/L	1	09/03/2019 19:32	156936
Hexachloroethane	NELAP	5.0		ND	µg/L	1	09/03/2019 19:32	156936
Iodomethane	NELAP	5.0		ND	µg/L	1	09/03/2019 19:32	156936
Isopropylbenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
m,p-Xylenes	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
Methacrylonitrile	NELAP	5.0		ND	µg/L	1	09/03/2019 19:32	156936
Methyl Methacrylate	NELAP	5.0		ND	µg/L	1	09/03/2019 19:32	156936
Methyl tert-butyl ether	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
Methylacrylate	NELAP	5.0		ND	µg/L	1	09/03/2019 19:32	156936
Methylene chloride	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
Naphthalene	NELAP	5.0		ND	µg/L	1	09/03/2019 19:32	156936

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

Lab ID: 19082090-003

Client Sample ID: MW-C2

Matrix: GROUNDWATER

Collection Date: 08/27/2019 12:27

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
n-Butyl acetate	*	2.0		ND	µg/L	1	09/03/2019 19:32	156936
n-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
n-Heptane	*	5.0		ND	µg/L	1	09/03/2019 19:32	156936
n-Hexane	*	5.0		ND	µg/L	1	09/03/2019 19:32	156936
Nitrobenzene	NELAP	50.0		ND	µg/L	1	09/03/2019 19:32	156936
n-Propylbenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
o-Xylene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
Pentachloroethane	NELAP	5.0		ND	µg/L	1	09/03/2019 19:32	156936
p-Isopropyltoluene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
Propionitrile	NELAP	10.0		ND	µg/L	1	09/03/2019 19:32	156936
sec-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
Styrene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
tert-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
Tetrachloroethylene	NELAP	0.5		ND	µg/L	1	09/03/2019 19:32	156936
Tetrahydrofuran	NELAP	5.0		ND	µg/L	1	09/03/2019 19:32	156936
Toluene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
trans-1,2-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
trans-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
trans-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
Trichloroethene	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
Trichlorofluoromethane	NELAP	5.0		ND	µg/L	1	09/03/2019 19:32	156936
Vinyl acetate	NELAP	5.0		ND	µg/L	1	09/03/2019 19:32	156936
Vinyl chloride	NELAP	2.0		ND	µg/L	1	09/03/2019 19:32	156936
Surr: 1,2-Dichloroethane-d4	*	79.6-118		87.8	%REC	1	09/03/2019 19:32	156936
Surr: 4-Bromofluorobenzene	*	83.9-115		94.1	%REC	1	09/03/2019 19:32	156936
Surr: Dibromofluoromethane	*	84.9-113		95.3	%REC	1	09/03/2019 19:32	156936
Surr: Toluene-d8	*	86.7-112		98.4	%REC	1	09/03/2019 19:32	156936

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

Lab ID: 19082090-004

Client Sample ID: MW-C8

Matrix: GROUNDWATER

Collection Date: 08/28/2019 9:20

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 353.2 R2.0 (TOTAL)								
Nitrogen, Nitrate (as N)	NELAP	0.050	J	0.032	mg/L	1	09/04/2019 17:05	R266550
EPA 600 375.2 REV 2.0 1993 (TOTAL)								
Sulfate	NELAP	20		82	mg/L	2	09/05/2019 18:10	R266501
SM-3500-FE D, LABORATORY ANALYZED								
Lab Ferrous Iron	*	0.20		7.2	mg/L	10	09/10/2019 11:30	R266668
STANDARD METHODS 4500-CL E (TOTAL) 1997								
Chloride	NELAP	8		16	mg/L	2	09/05/2019 18:10	R266526
STANDARD METHODS 4500-CO2 C, LABORATORY ANALYZED								
Lab Free Carbon Dioxide as CO2	*	0		23.7	mg/L	1	09/03/2019 15:24	R266464
STANDARD METHODS 5310 C, ORGANIC CARBON								
Dissolved Organic Carbon	NELAP	1.0		1.0	mg/L	1	09/03/2019 18:04	R266410
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		ND	µg/L	1	09/03/2019 13:52	R266415
Ethene	*	10.0		11.6	µg/L	1	09/03/2019 13:52	R266415
Methane	*	20.0		111	µg/L	5	09/03/2019 14:57	R266415
SW-846 3510C,8270C, SEMI-VOLATILE ORGANIC COMPOUNDS								
1,4-Dioxane	*	0.00100		0.00100	mg/L	1	09/04/2019 18:37	156900
Surr: 2-Fluorobiphenyl	*	21.4-142		59.0	%REC	1	09/04/2019 18:37	156900
Surr: Nitrobenzene-d5	*	15-163		64.2	%REC	1	09/04/2019 18:37	156900
Surr: p-Terphenyl-d14	*	10-173		83.6	%REC	1	09/04/2019 18:37	156900
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
1,1,1-Trichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
1,1,2,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
1,1,2-Trichloro-1,2,2-trifluoroethane	*	5.0		ND	µg/L	1	09/04/2019 11:47	156975
1,1,2-Trichloroethane	NELAP	0.5		ND	µg/L	1	09/04/2019 11:47	156975
1,1-Dichloro-2-propanone	*	30.0		ND	µg/L	1	09/04/2019 11:47	156975
1,1-Dichloroethane	NELAP	2.0	J	0.6	µg/L	1	09/04/2019 11:47	156975
1,1-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
1,1-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
1,2,3-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
1,2,3-Trichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
1,2,3-Trimethylbenzene	*	2.0		ND	µg/L	1	09/04/2019 11:47	156975
1,2,4-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
1,2,4-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
1,2-Dibromo-3-chloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
1,2-Dibromoethane	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
1,2-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
1,2-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
1,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
1,3,5-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
1,3-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
1,3-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
1,4-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
1-Chlorobutane	NELAP	5.0		ND	µg/L	1	09/04/2019 11:47	156975
2,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

Lab ID: 19082090-004

Client Sample ID: MW-C8

Matrix: GROUNDWATER

Collection Date: 08/28/2019 9:20

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
2-Butanone	NELAP	10.0		ND	µg/L	1	09/04/2019 11:47	156975
2-Chloroethyl vinyl ether	NELAP	5.0		ND	µg/L	1	09/04/2019 11:47	156975
2-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
2-Hexanone	NELAP	10.0		ND	µg/L	1	09/04/2019 11:47	156975
2-Nitropropane	NELAP	10.0		ND	µg/L	1	09/04/2019 11:47	156975
4-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
4-Methyl-2-pentanone	NELAP	10.0		ND	µg/L	1	09/04/2019 11:47	156975
Acetone	NELAP	10	J	6.1	µg/L	1	09/04/2019 11:47	156975
Acetonitrile	NELAP	10.0		ND	µg/L	1	09/04/2019 11:47	156975
Acrolein	NELAP	20.0		ND	µg/L	1	09/04/2019 11:47	156975
Acrylonitrile	NELAP	5.0		ND	µg/L	1	09/04/2019 11:47	156975
Allyl chloride	NELAP	5.0		ND	µg/L	1	09/04/2019 11:47	156975
Benzene	NELAP	0.5	J	0.1	µg/L	1	09/04/2019 11:47	156975
Bromobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
Bromoform	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
Bromomethane	NELAP	5.0		ND	µg/L	1	09/04/2019 11:47	156975
Carbon disulfide	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
Carbon tetrachloride	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
Chlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
Chloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
Chloroform	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
Chloromethane	NELAP	5.0		ND	µg/L	1	09/04/2019 11:47	156975
Chloroprene	NELAP	5.0		ND	µg/L	1	09/04/2019 11:47	156975
cis-1,2-Dichloroethene	NELAP	2.0		4.9	µg/L	1	09/04/2019 11:47	156975
cis-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
cis-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
Cyclohexanone	*	20.0		ND	µg/L	1	09/04/2019 11:47	156975
Dibromochloromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
Dibromomethane	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
Dichlorodifluoromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
Ethyl acetate	NELAP	10.0		ND	µg/L	1	09/04/2019 11:47	156975
Ethyl ether	NELAP	5.0		ND	µg/L	1	09/04/2019 11:47	156975
Ethyl methacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 11:47	156975
Ethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
Hexachlorobutadiene	NELAP	5.0		ND	µg/L	1	09/04/2019 11:47	156975
Hexachloroethane	NELAP	5.0		ND	µg/L	1	09/04/2019 11:47	156975
Iodomethane	NELAP	5.0		ND	µg/L	1	09/04/2019 11:47	156975
Isopropylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
m,p-Xylenes	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
Methacrylonitrile	NELAP	5.0		ND	µg/L	1	09/04/2019 11:47	156975
Methyl Methacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 11:47	156975
Methyl tert-butyl ether	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
Methylacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 11:47	156975
Methylene chloride	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
Naphthalene	NELAP	5.0		ND	µg/L	1	09/04/2019 11:47	156975

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

Lab ID: 19082090-004

Client Sample ID: MW-C8

Matrix: GROUNDWATER

Collection Date: 08/28/2019 9:20

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
n-Butyl acetate	*	2.0		ND	µg/L	1	09/04/2019 11:47	156975
n-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
n-Heptane	*	5.0		ND	µg/L	1	09/04/2019 11:47	156975
n-Hexane	*	5.0		ND	µg/L	1	09/04/2019 11:47	156975
Nitrobenzene	NELAP	50.0		ND	µg/L	1	09/04/2019 11:47	156975
n-Propylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
o-Xylene	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
Pentachloroethane	NELAP	5.0		ND	µg/L	1	09/04/2019 11:47	156975
p-Isopropyltoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
Propionitrile	NELAP	10.0		ND	µg/L	1	09/04/2019 11:47	156975
sec-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
Styrene	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
tert-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
Tetrachloroethylene	NELAP	0.5		ND	µg/L	1	09/04/2019 11:47	156975
Tetrahydrofuran	NELAP	5.0		ND	µg/L	1	09/04/2019 11:47	156975
Toluene	NELAP	2.0	J	0.2	µg/L	1	09/04/2019 11:47	156975
trans-1,2-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
trans-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
trans-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
Trichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 11:47	156975
Trichlorofluoromethane	NELAP	5.0		ND	µg/L	1	09/04/2019 11:47	156975
Vinyl acetate	NELAP	5.0		ND	µg/L	1	09/04/2019 11:47	156975
Vinyl chloride	NELAP	2.0		7.3	µg/L	1	09/04/2019 11:47	156975
Surr: 1,2-Dichloroethane-d4	*	79.6-118		98.8	%REC	1	09/04/2019 11:47	156975
Surr: 4-Bromofluorobenzene	*	83.9-115		101.1	%REC	1	09/04/2019 11:47	156975
Surr: Dibromofluoromethane	*	84.9-113		98.1	%REC	1	09/04/2019 11:47	156975
Surr: Toluene-d8	*	86.7-112		101.1	%REC	1	09/04/2019 11:47	156975

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

Lab ID: 19082090-005

Client Sample ID: MW-C7

Matrix: GROUNDWATER

Collection Date: 08/28/2019 10:50

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 353.2 R2.0 (TOTAL)								
Nitrogen, Nitrate (as N)	NELAP	0.050	J	0.033	mg/L	1	09/04/2019 17:18	R266550
EPA 600 375.2 REV 2.0 1993 (TOTAL)								
Sulfate	NELAP	20		37	mg/L	2	09/05/2019 18:12	R266501
SM-3500-FE D, LABORATORY ANALYZED								
Lab Ferrous Iron	*	0.20		4.0	mg/L	10	09/10/2019 11:31	R266668
STANDARD METHODS 4500-CL E (TOTAL) 1997								
Chloride	NELAP	8		45	mg/L	2	09/05/2019 18:13	R266526
STANDARD METHODS 4500-CO2 C, LABORATORY ANALYZED								
Lab Free Carbon Dioxide as CO2	*	0		36.8	mg/L	1	09/03/2019 15:24	R266464
STANDARD METHODS 5310 C, ORGANIC CARBON								
Dissolved Organic Carbon	NELAP	1.0		1.0	mg/L	1	09/03/2019 18:29	R266410
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		ND	µg/L	1	09/04/2019 8:47	R266452
Ethene	*	10.0		ND	µg/L	1	09/04/2019 8:47	R266452
Methane	*	4.0		13.4	µg/L	1	09/04/2019 8:47	R266452
SW-846 3510C,8270C, SEMI-VOLATILE ORGANIC COMPOUNDS								
1,4-Dioxane	*	0.00100		ND	mg/L	1	09/04/2019 19:15	156900
Surr: 2-Fluorobiphenyl	*	21.4-142		54.6	%REC	1	09/04/2019 19:15	156900
Surr: Nitrobenzene-d5	*	15-163		60.4	%REC	1	09/04/2019 19:15	156900
Surr: p-Terphenyl-d14	*	10-173		80.8	%REC	1	09/04/2019 19:15	156900
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
1,1,1-Trichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
1,1,2,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
1,1,2-Trichloro-1,2,2-trifluoroethane	*	5.0		ND	µg/L	1	09/04/2019 12:14	156975
1,1,2-Trichloroethane	NELAP	0.5		ND	µg/L	1	09/04/2019 12:14	156975
1,1-Dichloro-2-propanone	*	30.0		ND	µg/L	1	09/04/2019 12:14	156975
1,1-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
1,1-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
1,1-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
1,2,3-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
1,2,3-Trichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
1,2,3-Trimethylbenzene	*	2.0		ND	µg/L	1	09/04/2019 12:14	156975
1,2,4-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
1,2,4-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
1,2-Dibromo-3-chloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
1,2-Dibromoethane	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
1,2-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
1,2-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
1,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
1,3,5-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
1,3-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
1,3-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
1,4-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
1-Chlorobutane	NELAP	5.0		ND	µg/L	1	09/04/2019 12:14	156975
2,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

Lab ID: 19082090-005

Client Sample ID: MW-C7

Matrix: GROUNDWATER

Collection Date: 08/28/2019 10:50

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
2-Butanone	NELAP	10.0		ND	µg/L	1	09/04/2019 12:14	156975
2-Chloroethyl vinyl ether	NELAP	5.0		ND	µg/L	1	09/04/2019 12:14	156975
2-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
2-Hexanone	NELAP	10.0		ND	µg/L	1	09/04/2019 12:14	156975
2-Nitropropane	NELAP	10.0		ND	µg/L	1	09/04/2019 12:14	156975
4-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
4-Methyl-2-pentanone	NELAP	10.0		ND	µg/L	1	09/04/2019 12:14	156975
Acetone	NELAP	10	J	6.8	µg/L	1	09/04/2019 12:14	156975
Acetonitrile	NELAP	10.0		ND	µg/L	1	09/04/2019 12:14	156975
Acrolein	NELAP	20.0		ND	µg/L	1	09/04/2019 12:14	156975
Acrylonitrile	NELAP	5.0		ND	µg/L	1	09/04/2019 12:14	156975
Allyl chloride	NELAP	5.0		ND	µg/L	1	09/04/2019 12:14	156975
Benzene	NELAP	0.5		ND	µg/L	1	09/04/2019 12:14	156975
Bromobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
Bromochloromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
Bromodichloromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
Bromoform	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
Bromomethane	NELAP	5.0		ND	µg/L	1	09/04/2019 12:14	156975
Carbon disulfide	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
Carbon tetrachloride	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
Chlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
Chloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
Chloroform	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
Chloromethane	NELAP	5.0		ND	µg/L	1	09/04/2019 12:14	156975
Chloroprene	NELAP	5.0		ND	µg/L	1	09/04/2019 12:14	156975
cis-1,2-Dichloroethene	NELAP	2.0	J	0.5	µg/L	1	09/04/2019 12:14	156975
cis-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
cis-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
Cyclohexanone	*	20.0		ND	µg/L	1	09/04/2019 12:14	156975
Dibromochloromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
Dibromomethane	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
Dichlorodifluoromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
Ethyl acetate	NELAP	10.0		ND	µg/L	1	09/04/2019 12:14	156975
Ethyl ether	NELAP	5.0		ND	µg/L	1	09/04/2019 12:14	156975
Ethyl methacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 12:14	156975
Ethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
Hexachlorobutadiene	NELAP	5.0		ND	µg/L	1	09/04/2019 12:14	156975
Hexachloroethane	NELAP	5.0		ND	µg/L	1	09/04/2019 12:14	156975
Iodomethane	NELAP	5.0		ND	µg/L	1	09/04/2019 12:14	156975
Isopropylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
m,p-Xylenes	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
Methacrylonitrile	NELAP	5.0		ND	µg/L	1	09/04/2019 12:14	156975
Methyl Methacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 12:14	156975
Methyl tert-butyl ether	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
Methylacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 12:14	156975
Methylene chloride	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
Naphthalene	NELAP	5.0		ND	µg/L	1	09/04/2019 12:14	156975

Laboratory Results

<http://www.teklabinc.com/>
Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

Lab ID: 19082090-005

Client Sample ID: MW-C7

Matrix: GROUNDWATER

Collection Date: 08/28/2019 10:50

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
n-Butyl acetate	*	2.0		ND	µg/L	1	09/04/2019 12:14	156975
n-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
n-Heptane	*	5.0		ND	µg/L	1	09/04/2019 12:14	156975
n-Hexane	*	5.0		ND	µg/L	1	09/04/2019 12:14	156975
Nitrobenzene	NELAP	50.0		ND	µg/L	1	09/04/2019 12:14	156975
n-Propylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
o-Xylene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
Pentachloroethane	NELAP	5.0		ND	µg/L	1	09/04/2019 12:14	156975
p-Isopropyltoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
Propionitrile	NELAP	10.0		ND	µg/L	1	09/04/2019 12:14	156975
sec-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
Styrene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
tert-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
Tetrachloroethylene	NELAP	0.5		ND	µg/L	1	09/04/2019 12:14	156975
Tetrahydrofuran	NELAP	5.0		ND	µg/L	1	09/04/2019 12:14	156975
Toluene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
trans-1,2-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
trans-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
trans-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
Trichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:14	156975
Trichlorofluoromethane	NELAP	5.0		ND	µg/L	1	09/04/2019 12:14	156975
Vinyl acetate	NELAP	5.0		ND	µg/L	1	09/04/2019 12:14	156975
Vinyl chloride	NELAP	2.0	J	0.6	µg/L	1	09/04/2019 12:14	156975
Surr: 1,2-Dichloroethane-d4	*	79.6-118		100.4	%REC	1	09/04/2019 12:14	156975
Surr: 4-Bromofluorobenzene	*	83.9-115		100.5	%REC	1	09/04/2019 12:14	156975
Surr: Dibromofluoromethane	*	84.9-113		99.1	%REC	1	09/04/2019 12:14	156975
Surr: Toluene-d8	*	86.7-112		100.0	%REC	1	09/04/2019 12:14	156975

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

Lab ID: 19082090-006

Client Sample ID: MW-C5

Matrix: GROUNDWATER

Collection Date: 08/28/2019 12:55

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 353.2 R2.0 (TOTAL)								
Nitrogen, Nitrate (as N)	NELAP	0.050	J	0.028	mg/L	1	09/04/2019 17:20	R266550
EPA 600 375.2 REV 2.0 1993 (TOTAL)								
Sulfate	NELAP	10		34	mg/L	1	09/05/2019 18:31	R266501
SM-3500-FE D, LABORATORY ANALYZED								
Lab Ferrous Iron	*	0.20		4.9	mg/L	10	09/10/2019 11:32	R266668
STANDARD METHODS 4500-CL E (TOTAL) 1997								
Chloride	NELAP	4		16	mg/L	1	09/05/2019 18:31	R266526
STANDARD METHODS 4500-CO2 C, LABORATORY ANALYZED								
Lab Free Carbon Dioxide as CO2	*	0		14.8	mg/L	1	09/03/2019 15:24	R266464
STANDARD METHODS 5310 C, ORGANIC CARBON								
Dissolved Organic Carbon	NELAP	1.0	J	0.9	mg/L	1	09/03/2019 18:35	R266410
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		ND	µg/L	1	09/04/2019 9:01	R266452
Ethene	*	10.0		ND	µg/L	1	09/04/2019 9:01	R266452
Methane	*	4.0		4.6	µg/L	1	09/04/2019 9:01	R266452
SW-846 3510C,8270C, SEMI-VOLATILE ORGANIC COMPOUNDS								
1,4-Dioxane	*	0.00100		ND	mg/L	1	09/04/2019 19:52	156900
Surr: 2-Fluorobiphenyl	*	21.4-142		55.8	%REC	1	09/04/2019 19:52	156900
Surr: Nitrobenzene-d5	*	15-163		70.4	%REC	1	09/04/2019 19:52	156900
Surr: p-Terphenyl-d14	*	10-173		84.9	%REC	1	09/04/2019 19:52	156900
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
1,1,1-Trichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
1,1,2,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
1,1,2-Trichloro-1,2,2-trifluoroethane	*	5.0		ND	µg/L	1	09/04/2019 12:41	156975
1,1,2-Trichloroethane	NELAP	0.5		ND	µg/L	1	09/04/2019 12:41	156975
1,1-Dichloro-2-propanone	*	30.0		ND	µg/L	1	09/04/2019 12:41	156975
1,1-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
1,1-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
1,1-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
1,2,3-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
1,2,3-Trichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
1,2,3-Trimethylbenzene	*	2.0		ND	µg/L	1	09/04/2019 12:41	156975
1,2,4-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
1,2,4-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
1,2-Dibromo-3-chloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
1,2-Dibromoethane	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
1,2-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
1,2-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
1,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
1,3,5-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
1,3-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
1,3-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
1,4-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
1-Chlorobutane	NELAP	5.0		ND	µg/L	1	09/04/2019 12:41	156975
2,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

Lab ID: 19082090-006

Client Sample ID: MW-C5

Matrix: GROUNDWATER

Collection Date: 08/28/2019 12:55

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
2-Butanone	NELAP	10.0		ND	µg/L	1	09/04/2019 12:41	156975
2-Chloroethyl vinyl ether	NELAP	5.0		ND	µg/L	1	09/04/2019 12:41	156975
2-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
2-Hexanone	NELAP	10.0		ND	µg/L	1	09/04/2019 12:41	156975
2-Nitropropane	NELAP	10.0		ND	µg/L	1	09/04/2019 12:41	156975
4-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
4-Methyl-2-pentanone	NELAP	10.0		ND	µg/L	1	09/04/2019 12:41	156975
Acetone	NELAP	10	J	7.2	µg/L	1	09/04/2019 12:41	156975
Acetonitrile	NELAP	10.0		ND	µg/L	1	09/04/2019 12:41	156975
Acrolein	NELAP	20.0		ND	µg/L	1	09/04/2019 12:41	156975
Acrylonitrile	NELAP	5.0		ND	µg/L	1	09/04/2019 12:41	156975
Allyl chloride	NELAP	5.0		ND	µg/L	1	09/04/2019 12:41	156975
Benzene	NELAP	0.5		ND	µg/L	1	09/04/2019 12:41	156975
Bromobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
Bromoform	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
Bromomethane	NELAP	5.0		ND	µg/L	1	09/04/2019 12:41	156975
Carbon disulfide	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
Carbon tetrachloride	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
Chlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
Chloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
Chloroform	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
Chloromethane	NELAP	5.0		ND	µg/L	1	09/04/2019 12:41	156975
Chloroprene	NELAP	5.0		ND	µg/L	1	09/04/2019 12:41	156975
cis-1,2-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
cis-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
cis-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
Cyclohexanone	*	20.0		ND	µg/L	1	09/04/2019 12:41	156975
Dibromochloromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
Dibromomethane	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
Dichlorodifluoromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
Ethyl acetate	NELAP	10	J	2.3	µg/L	1	09/04/2019 12:41	156975
Ethyl ether	NELAP	5.0		ND	µg/L	1	09/04/2019 12:41	156975
Ethyl methacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 12:41	156975
Ethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
Hexachlorobutadiene	NELAP	5.0		ND	µg/L	1	09/04/2019 12:41	156975
Hexachloroethane	NELAP	5.0		ND	µg/L	1	09/04/2019 12:41	156975
Iodomethane	NELAP	5.0		ND	µg/L	1	09/04/2019 12:41	156975
Isopropylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
m,p-Xylenes	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
Methacrylonitrile	NELAP	5.0		ND	µg/L	1	09/04/2019 12:41	156975
Methyl Methacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 12:41	156975
Methyl tert-butyl ether	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
Methylacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 12:41	156975
Methylene chloride	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
Naphthalene	NELAP	5.0		ND	µg/L	1	09/04/2019 12:41	156975

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

Lab ID: 19082090-006

Client Sample ID: MW-C5

Matrix: GROUNDWATER

Collection Date: 08/28/2019 12:55

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
n-Butyl acetate	*	2.0		ND	µg/L	1	09/04/2019 12:41	156975
n-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
n-Heptane	*	5.0		ND	µg/L	1	09/04/2019 12:41	156975
n-Hexane	*	5.0		ND	µg/L	1	09/04/2019 12:41	156975
Nitrobenzene	NELAP	50.0		ND	µg/L	1	09/04/2019 12:41	156975
n-Propylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
o-Xylene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
Pentachloroethane	NELAP	5.0		ND	µg/L	1	09/04/2019 12:41	156975
p-Isopropyltoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
Propionitrile	NELAP	10.0		ND	µg/L	1	09/04/2019 12:41	156975
sec-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
Styrene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
tert-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
Tetrachloroethylene	NELAP	0.5		ND	µg/L	1	09/04/2019 12:41	156975
Tetrahydrofuran	NELAP	5.0		ND	µg/L	1	09/04/2019 12:41	156975
Toluene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
trans-1,2-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
trans-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
trans-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
Trichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
Trichlorofluoromethane	NELAP	5.0		ND	µg/L	1	09/04/2019 12:41	156975
Vinyl acetate	NELAP	5.0		ND	µg/L	1	09/04/2019 12:41	156975
Vinyl chloride	NELAP	2.0		ND	µg/L	1	09/04/2019 12:41	156975
Surr: 1,2-Dichloroethane-d4	*	79.6-118		101.3	%REC	1	09/04/2019 12:41	156975
Surr: 4-Bromofluorobenzene	*	83.9-115		101.2	%REC	1	09/04/2019 12:41	156975
Surr: Dibromofluoromethane	*	84.9-113		99.1	%REC	1	09/04/2019 12:41	156975
Surr: Toluene-d8	*	86.7-112		100.5	%REC	1	09/04/2019 12:41	156975

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

Lab ID: 19082090-007

Client Sample ID: MW-C6

Matrix: GROUNDWATER

Collection Date: 08/28/2019 13:40

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 353.2 R2.0 (TOTAL)								
Nitrogen, Nitrate (as N)	NELAP	0.050		0.055	mg/L	1	09/04/2019 17:22	R266550
EPA 600 375.2 REV 2.0 1993 (TOTAL)								
Sulfate	NELAP	10	S	30	mg/L	1	09/05/2019 18:34	R266501
<i>Matrix spike did not recover within control limits. Result verified by re-analysis at dilution.</i>								
SM-3500-FE D, LABORATORY ANALYZED								
Lab Ferrous Iron	*	1.0		24	mg/L	50	09/10/2019 12:15	R266668
STANDARD METHODS 4500-CL E (TOTAL) 1997								
Chloride	NELAP	4		20	mg/L	1	09/05/2019 18:34	R266526
STANDARD METHODS 4500-CO2 C, LABORATORY ANALYZED								
Lab Free Carbon Dioxide as CO2	*	0		35.5	mg/L	1	09/03/2019 15:24	R266464
STANDARD METHODS 5310 C, ORGANIC CARBON								
Dissolved Organic Carbon	NELAP	1.0		4.0	mg/L	1	09/03/2019 18:42	R266410
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		ND	µg/L	1	09/04/2019 9:13	R266452
Ethene	*	10.0		ND	µg/L	1	09/04/2019 9:13	R266452
Methane	*	200		1050	µg/L	50	09/04/2019 10:40	R266452
SW-846 3510C,8270C, SEMI-VOLATILE ORGANIC COMPOUNDS								
1,4-Dioxane	*	0.00100		ND	mg/L	1	09/04/2019 20:30	156900
Surr: 2-Fluorobiphenyl	*	21.4-142		60.9	%REC	1	09/04/2019 20:30	156900
Surr: Nitrobenzene-d5	*	15-163		71.2	%REC	1	09/04/2019 20:30	156900
Surr: p-Terphenyl-d14	*	10-173		63.9	%REC	1	09/04/2019 20:30	156900
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
1,1,1-Trichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
1,1,2,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
1,1,2-Trichloro-1,2,2-trifluoroethane	*	5.0		ND	µg/L	1	09/04/2019 13:07	156975
1,1,2-Trichloroethane	NELAP	0.5		ND	µg/L	1	09/04/2019 13:07	156975
1,1-Dichloro-2-propanone	*	30.0		ND	µg/L	1	09/04/2019 13:07	156975
1,1-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
1,1-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
1,1-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
1,2,3-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
1,2,3-Trichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
1,2,3-Trimethylbenzene	*	2.0		ND	µg/L	1	09/04/2019 13:07	156975
1,2,4-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
1,2,4-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
1,2-Dibromo-3-chloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
1,2-Dibromoethane	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
1,2-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
1,2-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
1,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
1,3,5-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
1,3-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
1,3-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
1,4-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
1-Chlorobutane	NELAP	5.0		ND	µg/L	1	09/04/2019 13:07	156975

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

Lab ID: 19082090-007

Client Sample ID: MW-C6

Matrix: GROUNDWATER

Collection Date: 08/28/2019 13:40

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
2,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
2-Butanone	NELAP	10	J	1.4	µg/L	1	09/04/2019 13:07	156975
2-Chloroethyl vinyl ether	NELAP	5.0		ND	µg/L	1	09/04/2019 13:07	156975
2-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
2-Hexanone	NELAP	10.0		ND	µg/L	1	09/04/2019 13:07	156975
2-Nitropropane	NELAP	10.0		ND	µg/L	1	09/04/2019 13:07	156975
4-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
4-Methyl-2-pentanone	NELAP	10.0		ND	µg/L	1	09/04/2019 13:07	156975
Acetone	NELAP	10	J	6.1	µg/L	1	09/04/2019 13:07	156975
Acetonitrile	NELAP	10.0		ND	µg/L	1	09/04/2019 13:07	156975
Acrolein	NELAP	20.0		ND	µg/L	1	09/04/2019 13:07	156975
Acrylonitrile	NELAP	5.0		ND	µg/L	1	09/04/2019 13:07	156975
Allyl chloride	NELAP	5.0		ND	µg/L	1	09/04/2019 13:07	156975
Benzene	NELAP	0.5		ND	µg/L	1	09/04/2019 13:07	156975
Bromobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
Bromochloromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
Bromodichloromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
Bromoform	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
Bromomethane	NELAP	5.0		ND	µg/L	1	09/04/2019 13:07	156975
Carbon disulfide	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
Carbon tetrachloride	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
Chlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
Chloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
Chloroform	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
Chloromethane	NELAP	5.0		ND	µg/L	1	09/04/2019 13:07	156975
Chloroprene	NELAP	5.0		ND	µg/L	1	09/04/2019 13:07	156975
cis-1,2-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
cis-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
cis-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
Cyclohexanone	*	20.0		ND	µg/L	1	09/04/2019 13:07	156975
Dibromochloromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
Dibromomethane	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
Dichlorodifluoromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
Ethyl acetate	NELAP	10.0		ND	µg/L	1	09/04/2019 13:07	156975
Ethyl ether	NELAP	5.0		ND	µg/L	1	09/04/2019 13:07	156975
Ethyl methacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 13:07	156975
Ethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
Hexachlorobutadiene	NELAP	5.0		ND	µg/L	1	09/04/2019 13:07	156975
Hexachloroethane	NELAP	5.0		ND	µg/L	1	09/04/2019 13:07	156975
Iodomethane	NELAP	5.0		ND	µg/L	1	09/04/2019 13:07	156975
Isopropylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
m,p-Xylenes	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
Methacrylonitrile	NELAP	5.0		ND	µg/L	1	09/04/2019 13:07	156975
Methyl Methacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 13:07	156975
Methyl tert-butyl ether	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
Methylacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 13:07	156975
Methylene chloride	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

Lab ID: 19082090-007

Client Sample ID: MW-C6

Matrix: GROUNDWATER

Collection Date: 08/28/2019 13:40

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
Naphthalene	NELAP	5.0		ND	µg/L	1	09/04/2019 13:07	156975
n-Butyl acetate	*	2.0		ND	µg/L	1	09/04/2019 13:07	156975
n-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
n-Heptane	*	5.0		ND	µg/L	1	09/04/2019 13:07	156975
n-Hexane	*	5.0		ND	µg/L	1	09/04/2019 13:07	156975
Nitrobenzene	NELAP	50.0		ND	µg/L	1	09/04/2019 13:07	156975
n-Propylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
o-Xylene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
Pentachloroethane	NELAP	5.0		ND	µg/L	1	09/04/2019 13:07	156975
p-Isopropyltoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
Propionitrile	NELAP	10.0		ND	µg/L	1	09/04/2019 13:07	156975
sec-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
Styrene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
tert-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
Tetrachloroethene	NELAP	0.5		ND	µg/L	1	09/04/2019 13:07	156975
Tetrahydrofuran	NELAP	5.0		ND	µg/L	1	09/04/2019 13:07	156975
Toluene	NELAP	2.0		198	µg/L	1	09/04/2019 13:07	156975
trans-1,2-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
trans-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
trans-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
Trichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:07	156975
Trichlorofluoromethane	NELAP	5.0		ND	µg/L	1	09/04/2019 13:07	156975
Vinyl acetate	NELAP	5.0		ND	µg/L	1	09/04/2019 13:07	156975
Vinyl chloride	NELAP	2.0	J	0.5	µg/L	1	09/04/2019 13:07	156975
Surr: 1,2-Dichloroethane-d4	*	79.6-118		100.0	%REC	1	09/04/2019 13:07	156975
Surr: 4-Bromofluorobenzene	*	83.9-115		99.5	%REC	1	09/04/2019 13:07	156975
Surr: Dibromofluoromethane	*	84.9-113		98.6	%REC	1	09/04/2019 13:07	156975
Surr: Toluene-d8	*	86.7-112		102.3	%REC	1	09/04/2019 13:07	156975

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc. **Work Order:** 19082090
Client Project: Hayford Bridge J006295.07 **Report Date:** 19-Sep-2019
Lab ID: 19082090-008 **Client Sample ID:** MW-C1
Matrix: GROUNDWATER **Collection Date:** 08/28/2019 15:35

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 353.2 R2.0 (TOTAL)								
Nitrogen, Nitrate (as N)	NELAP	0.050	J	0.034	mg/L	1	09/04/2019 17:24	R266550
EPA 600 375.2 REV 2.0 1993 (TOTAL)								
Sulfate	NELAP	20		59	mg/L	2	09/05/2019 18:55	R266501
SM-3500-FE D, LABORATORY ANALYZED								
Lab Ferrous Iron	*	0.20		6.6	mg/L	10	09/10/2019 11:34	R266668
STANDARD METHODS 4500-CL E (TOTAL) 1997								
Chloride	NELAP	8		84	mg/L	2	09/05/2019 18:55	R266526
STANDARD METHODS 4500-CO2 C, LABORATORY ANALYZED								
Lab Free Carbon Dioxide as CO2	*	0		27.8	mg/L	1	09/05/2019 15:15	R266622
STANDARD METHODS 5310 C, ORGANIC CARBON								
Dissolved Organic Carbon	NELAP	1.0		2.1	mg/L	1	09/03/2019 18:55	R266410
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		ND	µg/L	1	09/04/2019 9:24	R266452
Ethene	*	10.0		ND	µg/L	1	09/04/2019 9:24	R266452
Methane	*	4.0		31.8	µg/L	1	09/04/2019 9:24	R266452
SW-846 3510C,8270C, SEMI-VOLATILE ORGANIC COMPOUNDS								
1,4-Dioxane	*	0.00100		ND	mg/L	1	09/04/2019 21:08	156900
Surr: 2-Fluorobiphenyl	*	21.4-142		57.3	%REC	1	09/04/2019 21:08	156900
Surr: Nitrobenzene-d5	*	15-163		65.7	%REC	1	09/04/2019 21:08	156900
Surr: p-Terphenyl-d14	*	10-173		86.3	%REC	1	09/04/2019 21:08	156900
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
1,1,1-Trichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
1,1,2,2-Tetrachloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
1,1,2-Trichloro-1,2,2-trifluoroethane	*	5.0		ND	µg/L	1	09/04/2019 13:34	156975
1,1,2-Trichloroethane	NELAP	0.5		ND	µg/L	1	09/04/2019 13:34	156975
1,1-Dichloro-2-propanone	*	30.0		ND	µg/L	1	09/04/2019 13:34	156975
1,1-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
1,1-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
1,1-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
1,2,3-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
1,2,3-Trichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
1,2,3-Trimethylbenzene	*	2.0		ND	µg/L	1	09/04/2019 13:34	156975
1,2,4-Trichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
1,2,4-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
1,2-Dibromo-3-chloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
1,2-Dibromoethane	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
1,2-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
1,2-Dichloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
1,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
1,3,5-Trimethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
1,3-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
1,3-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
1,4-Dichlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
1-Chlorobutane	NELAP	5.0		ND	µg/L	1	09/04/2019 13:34	156975
2,2-Dichloropropane	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

Lab ID: 19082090-008

Client Sample ID: MW-C1

Matrix: GROUNDWATER

Collection Date: 08/28/2019 15:35

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
2-Butanone	NELAP	10.0		ND	µg/L	1	09/04/2019 13:34	156975
2-Chloroethyl vinyl ether	NELAP	5.0		ND	µg/L	1	09/04/2019 13:34	156975
2-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
2-Hexanone	NELAP	10.0		ND	µg/L	1	09/04/2019 13:34	156975
2-Nitropropane	NELAP	10.0		ND	µg/L	1	09/04/2019 13:34	156975
4-Chlorotoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
4-Methyl-2-pentanone	NELAP	10.0		ND	µg/L	1	09/04/2019 13:34	156975
Acetone	NELAP	10	J	6.5	µg/L	1	09/04/2019 13:34	156975
Acetonitrile	NELAP	10.0		ND	µg/L	1	09/04/2019 13:34	156975
Acrolein	NELAP	20.0		ND	µg/L	1	09/04/2019 13:34	156975
Acrylonitrile	NELAP	5.0		ND	µg/L	1	09/04/2019 13:34	156975
Allyl chloride	NELAP	5.0		ND	µg/L	1	09/04/2019 13:34	156975
Benzene	NELAP	0.5		ND	µg/L	1	09/04/2019 13:34	156975
Bromobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
Bromoform	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
Bromomethane	NELAP	5.0		ND	µg/L	1	09/04/2019 13:34	156975
Carbon disulfide	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
Carbon tetrachloride	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
Chlorobenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
Chloroethane	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
Chloroform	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
Chloromethane	NELAP	5.0		ND	µg/L	1	09/04/2019 13:34	156975
Chloroprene	NELAP	5.0		ND	µg/L	1	09/04/2019 13:34	156975
cis-1,2-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
cis-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
cis-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
Cyclohexanone	*	20.0		ND	µg/L	1	09/04/2019 13:34	156975
Dibromochloromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
Dibromomethane	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
Dichlorodifluoromethane	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
Ethyl acetate	NELAP	10.0		ND	µg/L	1	09/04/2019 13:34	156975
Ethyl ether	NELAP	5.0		ND	µg/L	1	09/04/2019 13:34	156975
Ethyl methacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 13:34	156975
Ethylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
Hexachlorobutadiene	NELAP	5.0		ND	µg/L	1	09/04/2019 13:34	156975
Hexachloroethane	NELAP	5.0		ND	µg/L	1	09/04/2019 13:34	156975
Iodomethane	NELAP	5.0		ND	µg/L	1	09/04/2019 13:34	156975
Isopropylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
m,p-Xylenes	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
Methacrylonitrile	NELAP	5.0		ND	µg/L	1	09/04/2019 13:34	156975
Methyl Methacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 13:34	156975
Methyl tert-butyl ether	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
Methylacrylate	NELAP	5.0		ND	µg/L	1	09/04/2019 13:34	156975
Methylene chloride	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
Naphthalene	NELAP	5.0		ND	µg/L	1	09/04/2019 13:34	156975

Laboratory Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

Lab ID: 19082090-008

Client Sample ID: MW-C1

Matrix: GROUNDWATER

Collection Date: 08/28/2019 15:35

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
n-Butyl acetate	*	2.0		ND	µg/L	1	09/04/2019 13:34	156975
n-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
n-Heptane	*	5.0		ND	µg/L	1	09/04/2019 13:34	156975
n-Hexane	*	5.0		ND	µg/L	1	09/04/2019 13:34	156975
Nitrobenzene	NELAP	50.0		ND	µg/L	1	09/04/2019 13:34	156975
n-Propylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
o-Xylene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
Pentachloroethane	NELAP	5.0		ND	µg/L	1	09/04/2019 13:34	156975
p-Isopropyltoluene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
Propionitrile	NELAP	10.0		ND	µg/L	1	09/04/2019 13:34	156975
sec-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
Styrene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
tert-Butylbenzene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
Tetrachloroethylene	NELAP	0.5		ND	µg/L	1	09/04/2019 13:34	156975
Tetrahydrofuran	NELAP	5.0		ND	µg/L	1	09/04/2019 13:34	156975
Toluene	NELAP	2.0	J	0.2	µg/L	1	09/04/2019 13:34	156975
trans-1,2-Dichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
trans-1,3-Dichloropropene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
trans-1,4-Dichloro-2-butene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
Trichloroethene	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
Trichlorofluoromethane	NELAP	5.0		ND	µg/L	1	09/04/2019 13:34	156975
Vinyl acetate	NELAP	5.0		ND	µg/L	1	09/04/2019 13:34	156975
Vinyl chloride	NELAP	2.0		ND	µg/L	1	09/04/2019 13:34	156975
Surr: 1,2-Dichloroethane-d4	*	79.6-118		101.4	%REC	1	09/04/2019 13:34	156975
Surr: 4-Bromofluorobenzene	*	83.9-115		100.8	%REC	1	09/04/2019 13:34	156975
Surr: Dibromofluoromethane	*	84.9-113		98.9	%REC	1	09/04/2019 13:34	156975
Surr: Toluene-d8	*	86.7-112		99.9	%REC	1	09/04/2019 13:34	156975



Sample Summary

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

Lab Sample ID	Client Sample ID	Matrix	Fractions	Collection Date
19082090-001	MW-C16	Groundwater	7	08/26/2019 13:35
19082090-002	MW-C17	Groundwater	7	08/26/2019 15:10
19082090-003	MW-C2	Groundwater	7	08/27/2019 12:27
19082090-004	MW-C8	Groundwater	7	08/28/2019 9:20
19082090-005	MW-C7	Groundwater	7	08/28/2019 10:50
19082090-006	MW-C5	Groundwater	7	08/28/2019 12:55
19082090-007	MW-C6	Groundwater	7	08/28/2019 13:40
19082090-008	MW-C1	Groundwater	7	08/28/2019 15:35

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

Sample ID	Client Sample ID	Collection Date	Received Date	Prep Date/Time	Analysis Date/Time
		Test Name			
19082090-001A	MW-C16	08/26/2019 13:35	08/30/2019 15:50		
	SW-846 3510C,8270C, Semi-Volatile Organic Compounds			09/03/2019 9:48	09/04/2019 16:43
19082090-001B	MW-C16	08/26/2019 13:35	08/30/2019 15:50		
	EPA 600 375.2 Rev 2.0 1993 (Total)				09/05/2019 17:59
	Standard Method 4500-H B 2000, Laboratory Analyzed				09/03/2019 9:34
	Standard Methods 4500-Cl E (Total) 1997				09/05/2019 18:00
	Standard Methods 4500-CO2 C, Laboratory Analyzed				09/03/2019 15:24
	Standard Methods 4500-NO2 B (Total) 2000				08/30/2019 18:32
19082090-001C	MW-C16	08/26/2019 13:35	08/30/2019 15:50		
	EPA 600 353.2 R2.0 (Total)				09/04/2019 16:50
19082090-001D	MW-C16	08/26/2019 13:35	08/30/2019 15:50		
	Standard Methods 5310 C, Organic Carbon				09/03/2019 17:13
19082090-001E	MW-C16	08/26/2019 13:35	08/30/2019 15:50		
	SM-3500-Fe D, Laboratory Analyzed				09/10/2019 11:25
19082090-001F	MW-C16	08/26/2019 13:35	08/30/2019 15:50		
	Permanent Gases (RSKSOP-175)				09/03/2019 13:02
	Permanent Gases (RSKSOP-175)				09/03/2019 14:04
19082090-001G	MW-C16	08/26/2019 13:35	08/30/2019 15:50		
	SW-846 5030, 8260B, Volatile Organic Compounds by GC/MS				09/03/2019 18:37
19082090-002A	MW-C17	08/26/2019 15:10	08/30/2019 15:50		
	SW-846 3510C,8270C, Semi-Volatile Organic Compounds			09/03/2019 9:48	09/04/2019 17:22
19082090-002B	MW-C17	08/26/2019 15:10	08/30/2019 15:50		
	EPA 600 375.2 Rev 2.0 1993 (Total)				09/05/2019 18:02
	Standard Method 4500-H B 2000, Laboratory Analyzed				09/03/2019 9:34
	Standard Methods 4500-Cl E (Total) 1997				09/05/2019 18:02
	Standard Methods 4500-CO2 C, Laboratory Analyzed				09/03/2019 15:24
	Standard Methods 4500-NO2 B (Total) 2000				08/30/2019 18:33
19082090-002C	MW-C17	08/26/2019 15:10	08/30/2019 15:50		
	EPA 600 353.2 R2.0 (Total)				09/04/2019 16:52
19082090-002D	MW-C17	08/26/2019 15:10	08/30/2019 15:50		
	Standard Methods 5310 C, Organic Carbon				09/03/2019 17:19
19082090-002E	MW-C17	08/26/2019 15:10	08/30/2019 15:50		
	SM-3500-Fe D, Laboratory Analyzed				09/10/2019 11:27
19082090-002F	MW-C17	08/26/2019 15:10	08/30/2019 15:50		
	Permanent Gases (RSKSOP-175)				09/03/2019 13:22
	Permanent Gases (RSKSOP-175)				09/03/2019 14:34

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

Sample ID	Client Sample ID	Collection Date	Received Date	Prep Date/Time	Analysis Date/Time
		Test Name			
19082090-002G	MW-C17	08/26/2019 15:10	08/30/2019 15:50		
	SW-846 5030, 8260B, Volatile Organic Compounds by GC/MS			09/03/2019 19:04	
19082090-003A	MW-C2	08/27/2019 12:27	08/30/2019 15:50		
	SW-846 3510C,8270C, Semi-Volatile Organic Compounds			09/03/2019 9:48	09/04/2019 18:00
19082090-003B	MW-C2	08/27/2019 12:27	08/30/2019 15:50		
	EPA 600 375.2 Rev 2.0 1993 (Total)			09/05/2019 18:05	
	Standard Method 4500-H B 2000, Laboratory Analyzed			09/03/2019 9:34	
	Standard Methods 4500-Cl E (Total) 1997			09/05/2019 18:05	
	Standard Methods 4500-CO2 C, Laboratory Analyzed			09/03/2019 15:24	
	Standard Methods 4500-NO2 B (Total) 2000			08/30/2019 18:33	
19082090-003C	MW-C2	08/27/2019 12:27	08/30/2019 15:50		
	EPA 600 353.2 R2.0 (Total)			09/04/2019 16:56	
19082090-003D	MW-C2	08/27/2019 12:27	08/30/2019 15:50		
	Standard Methods 5310 C, Organic Carbon			09/03/2019 17:58	
19082090-003E	MW-C2	08/27/2019 12:27	08/30/2019 15:50		
	SM-3500-Fe D, Laboratory Analyzed			09/10/2019 11:28	
19082090-003F	MW-C2	08/27/2019 12:27	08/30/2019 15:50		
	Permanent Gases (RSKSOP-175)			09/03/2019 13:33	
19082090-003G	MW-C2	08/27/2019 12:27	08/30/2019 15:50		
	SW-846 5030, 8260B, Volatile Organic Compounds by GC/MS			09/03/2019 19:32	
19082090-004A	MW-C8	08/28/2019 9:20	08/30/2019 15:50		
	SW-846 3510C,8270C, Semi-Volatile Organic Compounds			09/03/2019 9:48	09/04/2019 18:37
19082090-004B	MW-C8	08/28/2019 9:20	08/30/2019 15:50		
	EPA 600 375.2 Rev 2.0 1993 (Total)			09/05/2019 18:10	
	Standard Method 4500-H B 2000, Laboratory Analyzed			09/03/2019 9:34	
	Standard Methods 4500-Cl E (Total) 1997			09/05/2019 18:10	
	Standard Methods 4500-CO2 C, Laboratory Analyzed			09/03/2019 15:24	
	Standard Methods 4500-NO2 B (Total) 2000			08/30/2019 18:34	
19082090-004C	MW-C8	08/28/2019 9:20	08/30/2019 15:50		
	EPA 600 353.2 R2.0 (Total)			09/04/2019 17:05	
19082090-004D	MW-C8	08/28/2019 9:20	08/30/2019 15:50		
	Standard Methods 5310 C, Organic Carbon			09/03/2019 18:04	
19082090-004E	MW-C8	08/28/2019 9:20	08/30/2019 15:50		
	SM-3500-Fe D, Laboratory Analyzed			09/10/2019 11:30	
19082090-004F	MW-C8	08/28/2019 9:20	08/30/2019 15:50		

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

Sample ID	Client Sample ID	Collection Date	Received Date	Prep Date/Time	Analysis Date/Time
	Test Name				
	Permanent Gases (RSKSOP-175)				09/03/2019 13:52
	Permanent Gases (RSKSOP-175)				09/03/2019 14:57
19082090-004G	MW-C8	08/28/2019 9:20	08/30/2019 15:50		
	SW-846 5030, 8260B, Volatile Organic Compounds by GC/MS				09/04/2019 11:47
19082090-005A	MW-C7	08/28/2019 10:50	08/30/2019 15:50		
	SW-846 3510C,8270C, Semi-Volatile Organic Compounds			09/03/2019 9:48	09/04/2019 19:15
19082090-005B	MW-C7	08/28/2019 10:50	08/30/2019 15:50		
	EPA 600 375.2 Rev 2.0 1993 (Total)				09/05/2019 18:12
	Standard Method 4500-H B 2000, Laboratory Analyzed				09/03/2019 9:34
	Standard Methods 4500-Cl E (Total) 1997				09/05/2019 18:13
	Standard Methods 4500-CO2 C, Laboratory Analyzed				09/03/2019 15:24
	Standard Methods 4500-NO2 B (Total) 2000				08/30/2019 18:34
19082090-005C	MW-C7	08/28/2019 10:50	08/30/2019 15:50		
	EPA 600 353.2 R2.0 (Total)				09/04/2019 17:18
19082090-005D	MW-C7	08/28/2019 10:50	08/30/2019 15:50		
	Standard Methods 5310 C, Organic Carbon				09/03/2019 18:29
19082090-005E	MW-C7	08/28/2019 10:50	08/30/2019 15:50		
	SM-3500-Fe D, Laboratory Analyzed				09/10/2019 11:31
19082090-005F	MW-C7	08/28/2019 10:50	08/30/2019 15:50		
	Permanent Gases (RSKSOP-175)				09/04/2019 8:47
19082090-005G	MW-C7	08/28/2019 10:50	08/30/2019 15:50		
	SW-846 5030, 8260B, Volatile Organic Compounds by GC/MS				09/04/2019 12:14
19082090-006A	MW-C5	08/28/2019 12:55	08/30/2019 15:50		
	SW-846 3510C,8270C, Semi-Volatile Organic Compounds			09/03/2019 13:31	09/04/2019 19:52
19082090-006B	MW-C5	08/28/2019 12:55	08/30/2019 15:50		
	EPA 600 375.2 Rev 2.0 1993 (Total)				09/05/2019 18:31
	Standard Method 4500-H B 2000, Laboratory Analyzed				09/03/2019 9:34
	Standard Methods 4500-Cl E (Total) 1997				09/05/2019 18:31
	Standard Methods 4500-CO2 C, Laboratory Analyzed				09/03/2019 15:24
	Standard Methods 4500-NO2 B (Total) 2000				08/30/2019 18:35
19082090-006C	MW-C5	08/28/2019 12:55	08/30/2019 15:50		
	EPA 600 353.2 R2.0 (Total)				09/04/2019 17:20
19082090-006D	MW-C5	08/28/2019 12:55	08/30/2019 15:50		
	Standard Methods 5310 C, Organic Carbon				09/03/2019 18:35
19082090-006E	MW-C5	08/28/2019 12:55	08/30/2019 15:50		
	SM-3500-Fe D, Laboratory Analyzed				09/10/2019 11:32

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

Sample ID	Client Sample ID	Collection Date	Received Date	
			Prep Date/Time	Analysis Date/Time
19082090-006F	MW-C5	08/28/2019 12:55	08/30/2019 15:50	
	Permanent Gases (RSKSOP-175)			09/04/2019 9:01
19082090-006G	MW-C5	08/28/2019 12:55	08/30/2019 15:50	
	SW-846 5030, 8260B, Volatile Organic Compounds by GC/MS			09/04/2019 12:41
19082090-007A	MW-C6	08/28/2019 13:40	08/30/2019 15:50	
	SW-846 3510C,8270C, Semi-Volatile Organic Compounds		09/03/2019 13:31	09/04/2019 20:30
19082090-007B	MW-C6	08/28/2019 13:40	08/30/2019 15:50	
	EPA 600 375.2 Rev 2.0 1993 (Total)			09/05/2019 18:34
	Standard Method 4500-H B 2000, Laboratory Analyzed			09/03/2019 9:34
	Standard Methods 4500-Cl E (Total) 1997			09/05/2019 18:34
	Standard Methods 4500-CO2 C, Laboratory Analyzed			09/03/2019 15:24
	Standard Methods 4500-NO2 B (Total) 2000			08/30/2019 18:36
19082090-007C	MW-C6	08/28/2019 13:40	08/30/2019 15:50	
	EPA 600 353.2 R2.0 (Total)			09/04/2019 17:22
19082090-007D	MW-C6	08/28/2019 13:40	08/30/2019 15:50	
	Standard Methods 5310 C, Organic Carbon			09/03/2019 18:42
19082090-007E	MW-C6	08/28/2019 13:40	08/30/2019 15:50	
	SM-3500-Fe D, Laboratory Analyzed			09/10/2019 12:15
19082090-007F	MW-C6	08/28/2019 13:40	08/30/2019 15:50	
	Permanent Gases (RSKSOP-175)			09/04/2019 9:13
	Permanent Gases (RSKSOP-175)			09/04/2019 10:40
19082090-007G	MW-C6	08/28/2019 13:40	08/30/2019 15:50	
	SW-846 5030, 8260B, Volatile Organic Compounds by GC/MS			09/04/2019 13:07
19082090-008A	MW-C1	08/28/2019 15:35	08/30/2019 15:50	
	SW-846 3510C,8270C, Semi-Volatile Organic Compounds		09/03/2019 13:31	09/04/2019 21:08
19082090-008B	MW-C1	08/28/2019 15:35	08/30/2019 15:50	
	EPA 600 375.2 Rev 2.0 1993 (Total)			09/05/2019 18:55
	Standard Method 4500-H B 2000, Laboratory Analyzed			09/03/2019 9:34
	Standard Methods 4500-Cl E (Total) 1997			09/05/2019 18:55
	Standard Methods 4500-CO2 C, Laboratory Analyzed			09/05/2019 15:15
	Standard Methods 4500-NO2 B (Total) 2000			08/30/2019 18:36
19082090-008C	MW-C1	08/28/2019 15:35	08/30/2019 15:50	
	EPA 600 353.2 R2.0 (Total)			09/04/2019 17:24
19082090-008D	MW-C1	08/28/2019 15:35	08/30/2019 15:50	
	Standard Methods 5310 C, Organic Carbon			09/03/2019 18:55

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Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

Sample ID	Client Sample ID	Collection Date	Received Date	Prep Date/Time	Analysis Date/Time
Test Name					
19082090-008E	MW-C1	08/28/2019 15:35	08/30/2019 15:50		
	SM-3500-Fe D, Laboratory Analyzed				09/10/2019 11:34
19082090-008F	MW-C1	08/28/2019 15:35	08/30/2019 15:50		
	Permanent Gases (RSKSOP-175)				09/04/2019 9:24
19082090-008G	MW-C1	08/28/2019 15:35	08/30/2019 15:50		
	SW-846 5030, 8260B, Volatile Organic Compounds by GC/MS				09/04/2019 13:34



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Client: Geotechnology, Inc.

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Client Project: Hayford Bridge J006295.07

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EPA 600 353.2 R2.0 (TOTAL)

Batch	R266550	SampType:	MBLK	Units	mg/L							Date Analyzed
SampID:	MBLK											
Analyses		RL	Qual			Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Nitrogen, Nitrate (as N)		0.050				< 0.050						09/04/2019

EPA 600 375.2 REV 2.0 1993 (TOTAL)

Batch	R266501	SampType:	MBLK	Units	mg/L							Date Analyzed
SampID:	ICB/MBLK											
Analyses		RL	Qual			Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Sulfate		10				< 10	7.620	0	0	-100	100	09/05/2019

Batch R266501 SampType: MBLK

SampID:	MB-R266501	Units	mg/Kg									Date Analyzed
Analyses		RL	Qual			Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Sulfate		100				< 100	76.20	0	0	-100	100	09/05/2019

Batch R266501 SampType: LCS

SampID:	ICV/LCS	Units	mg/L									Date Analyzed
Analyses		RL	Qual			Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Sulfate		10				20	20.00	0	99.7	90	110	09/05/2019

Batch R266501 SampType: LCS

SampID:	LCS-R266501	Units	mg/Kg									Date Analyzed
Analyses		RL	Qual			Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Sulfate		100				199	200.0	0	99.6	90	110	09/05/2019

Batch R266501 SampType: MS

SampID:	19082090-007BMS	Units	mg/L									Date Analyzed
Analyses		RL	Qual			Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Sulfate		10				39	10.00	29.59	98.8	90	110	09/05/2019

Batch R266501 SampType: MSD

SampID:	19082090-007BMSD	Units	mg/L									RPD Limit 10
Analyses		RL	Qual			Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Sulfate		10	S			38	10.00	29.59	80.6	39.47	4.72	09/05/2019

SM-3500-FE D, LABORATORY ANALYZED

Batch	R266668	SampType:	MBLK	Units	mg/L							Date Analyzed
SampID:	MBLK											
Analyses		RL	Qual			Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Lab Ferrous Iron		0.020				< 0.020	0.00800C	0	0	-100	100	09/10/2019

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

SM-3500-FE D, LABORATORY ANALYZED

Batch R266668 SampType: LCS		Units mg/L									
SamplID: LCS		Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lab Ferrous Iron			0.020		0.52	0.5000	0	104.8	90	110	09/10/2019

Batch R266668 SampType: MS

Batch R266668 SampType: MS		Units mg/L								Date Analyzed	
SamplID: 19082090-001EMS		Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Lab Ferrous Iron			0.20		6.8	2.500	4.160	107.2	85	115	09/10/2019

Batch R266668 SampType: MSD

Batch R266668 SampType: MSD		Units mg/L								RPD Limit 15	
SamplID: 19082090-001EMSD		Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab Ferrous Iron			0.20		6.9	2.500	4.160	110.4	6.840	1.16	09/10/2019

STANDARD METHOD 4500-H B 2000, LABORATORY ANALYZED

Batch R266407 SampType: LCS		Units								Date Analyzed	
SamplID: LCS		Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Lab pH			1.00		6.98	7.000	0	99.7	99.1	100.8	09/03/2019

Batch R266407 SampType: DUP

Batch R266407 SampType: DUP		Units								RPD Limit 10	
SamplID: 19082090-001BDUP		Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH			1.00		7.46				7.450	0.13	09/03/2019

Batch R266407 SampType: DUP

Batch R266407 SampType: DUP		Units								RPD Limit 10	
SamplID: 19082090-002BDUP		Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH			1.00		7.40				7.370	0.41	09/03/2019

Batch R266407 SampType: DUP

Batch R266407 SampType: DUP		Units								RPD Limit 10	
SamplID: 19082090-003BDUP		Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH			1.00		7.51				7.500	0.13	09/03/2019

Batch R266407 SampType: DUP

Batch R266407 SampType: DUP		Units								RPD Limit 10	
SamplID: 19082090-004BDUP		Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lab pH			1.00		7.41				7.400	0.14	09/03/2019



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Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

STANDARD METHOD 4500-H B 2000, LABORATORY ANALYZED

Batch	R266407	SampType:	DUP	Units	RPD Limit 10						
SampID:	19082090-005BDUP										
Analyses		RL	Qual		Result	Spike	SPK	Ref Val	%REC	RPD Ref Val	%RPD
Lab pH		1.00			7.18					7.140	0.56
											Date Analyzed
Batch	R266407	SampType:	DUP	Units	RPD Limit 10						
SampID:	19082090-006BDUP										Date Analyzed
Analyses		RL	Qual		Result	Spike	SPK	Ref Val	%REC	RPD Ref Val	%RPD
Lab pH		1.00			7.61					7.610	0.00
											Date Analyzed
Batch	R266407	SampType:	DUP	Units	RPD Limit 10						
SampID:	19082090-007BDUP										Date Analyzed
Analyses		RL	Qual		Result	Spike	SPK	Ref Val	%REC	RPD Ref Val	%RPD
Lab pH		1.00			7.33					7.310	0.27
											Date Analyzed
Batch	R266407	SampType:	DUP	Units	RPD Limit 10						
SampID:	19082090-008BDUP										Date Analyzed
Analyses		RL	Qual		Result	Spike	SPK	Ref Val	%REC	RPD Ref Val	%RPD
Lab pH		1.00			7.46					7.470	0.13
											Date Analyzed

STANDARD METHODS 4500-CL E (TOTAL) 1997

Batch	R266526	SampType:	MBLK	Units mg/L	Date Analyzed						
SampID:	ICB/MBLK										
Analyses		RL	Qual		Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit
Chloride		4			< 4	0.5000		0	0	-100	100
											Date Analyzed
Batch	R266526	SampType:	LCS	Units mg/L	Date Analyzed						
SampID:	ICV/LCS										Date Analyzed
Analyses		RL	Qual		Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit
Chloride		4			19	20.00		0	95.0	90	110
											Date Analyzed
Batch	R266526	SampType:	MS	Units mg/L	Date Analyzed						
SampID:	19082090-007BMS										Date Analyzed
Analyses		RL	Qual		Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit
Chloride		4			38	20.00		19.67	92.4	85	115
											Date Analyzed
Batch	R266526	SampType:	MSD	Units mg/L	RPD Limit 15						
SampID:	19082090-007BMSD										Date Analyzed
Analyses		RL	Qual		Result	Spike	SPK	Ref Val	%REC	RPD Ref Val	%RPD
Chloride		4			38	20.00		19.67	93.4	38.15	0.50
											Date Analyzed

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Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

STANDARD METHODS 4500-NO2 B (TOTAL) 2000

Batch	R266308	SampType:	MBLK	Units	mg/L								
Analyses				RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Nitrogen, Nitrite (as N)				0.05		< 0.05	0.02500	0	0	-100	100		08/29/2019
Nitrogen, Nitrite (as N)				0.05		< 0.05	0.02500	0	0	-100	100		08/29/2019

Batch R266308 SampType: LCS Units mg/L

Batch	R266308	SampType:	LCS	Units	mg/L								Date Analyzed
Analyses				RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	
Nitrogen, Nitrite (as N)				0.25		1.07	1.100	0	97.3	90	110		08/29/2019
Nitrogen, Nitrite (as N)				0.25		1.10	1.100	0	100.0	90	110		08/29/2019

STANDARD METHODS 5310 C, ORGANIC CARBON

Batch	R266410	SampType:	MBLK	Units	mg/L								Date Analyzed
Analyses				RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	
Dissolved Organic Carbon				1.0		< 1.0	0.4500	0	0	0	0	0	09/03/2019

Batch R266410 SampType: LCS Units mg/L

Batch	R266410	SampType:	LCS	Units	mg/L								Date Analyzed
Analyses				RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	
Dissolved Organic Carbon				10.0		54.7	52.60	0	104.0	90	110		09/03/2019

Batch R266410 SampType: MS Units mg/L

Batch	R266410	SampType:	MS	Units	mg/L								Date Analyzed
Analyses				RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	
Dissolved Organic Carbon				1.0		6.0	5.000	1.050	98.0	85	115		09/03/2019

Batch R266410 SampType: MSD Units mg/L

Batch	R266410	SampType:	MSD	Units	mg/L								RPD Limit 10
Analyses				RL	Qual	Result	Spike	SPK	Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Dissolved Organic Carbon				1.0		6.0	5.000	1.050	98.0	5.950	0.00	0.00	09/03/2019

PERMANENT GASES (RSKSOP-175)

Batch	R266415	SampType:	MBLK	Units	µg/L								Date Analyzed
Analyses				RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	
Ethane				7.0		ND							09/03/2019
Ethene				10.0		ND							09/03/2019
Methane				4.0		ND							09/03/2019

Quality Control Results

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Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

PERMANENT GASES (RSKSOP-175)

Batch	R266415	SampType	LCS	Units	µg/L							
										Date Analyzed		
SampID: LCS-090319												
Analyses		RL	Qual			Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Ethane		7.0				65.5	100.0	0	65.5	25.5	132	09/03/2019
Ethene		10.0				70.2	100.0	0	70.2	23.6	132	09/03/2019
Methane		4.0				63.7	100.0	0	63.7	23.9	132	09/03/2019

Batch R266415 SampType: LCSD Units µg/L RPD Limit 39.7

Batch	R266415	SampType	LCSD	Units	µg/L							Date Analyzed
										RPD Ref Val		%RPD
SampID: LCSD-090319												
Analyses		RL	Qual			Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	
Ethane		7.0				72.3	100.0	0	72.3	65.51	9.85	09/03/2019
Ethene		10.0				77.8	100.0	0	77.8	70.24	10.19	09/03/2019
Methane		4.0				70.3	100.0	0	70.3	63.71	9.84	09/03/2019

Batch R266452 SampType: MBLK Units µg/L

Batch	R266452	SampType	MBLK	Units	µg/L							Date Analyzed
										Low Limit	High Limit	
SampID: MBLK-090419												
Analyses		RL	Qual			Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Ethane		7.0				ND						09/04/2019
Ethene		10.0				ND						09/04/2019
Methane		4.0				ND						09/04/2019

Batch R266452 SampType: LCS Units µg/L

Batch	R266452	SampType	LCS	Units	µg/L							Date Analyzed
										Low Limit	High Limit	
SampID: LCS-090419												
Analyses		RL	Qual			Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
Ethane		7.0				70.9	100.0	0	70.9	25.5	132	09/04/2019
Ethene		10.0				74.2	100.0	0	74.2	23.6	132	09/04/2019
Methane		4.0				68.4	100.0	0	68.4	23.9	132	09/04/2019

Batch R266452 SampType: LCSD Units µg/L RPD Limit 39.7

Batch	R266452	SampType	LCSD	Units	µg/L							Date Analyzed
										RPD Ref Val	%RPD	
SampID: LCSD-090419												
Analyses		RL	Qual			Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	
Ethane		7.0				77.3	100.0	0	77.3	70.87	8.67	09/04/2019
Ethene		10.0				81.2	100.0	0	81.2	74.21	8.95	09/04/2019
Methane		4.0				74.8	100.0	0	74.8	68.43	8.91	09/04/2019

SW-846 3510C,8270C, SEMI-VOLATILE ORGANIC COMPOUNDS

Batch	156900	SampType	MBLK	Units	mg/L							Date Analyzed
										Low Limit	High Limit	
SampID: MBLK-156900												
Analyses		RL	Qual			Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
1,4-Dioxane		0.00100				ND						09/04/2019
Surr: 2-Fluorobiphenyl						0.000625	0.00100C			62.5	30	133
Surr: Nitrobenzene-d5						0.000782	0.00100C			78.2	39.8	123
Surr: p-Terphenyl-d14						0.000836	0.00100C			83.6	48.1	144

Quality Control Results

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Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

SW-846 3510C,8270C, SEMI-VOLATILE ORGANIC COMPOUNDS

Batch	156900	SampType	LCS	Units	mg/L						Date Analyzed
SampID:	LCS-156900										
Analyses		RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	
1,4-Dioxane		0.00100		0.00122	0.00200C	0	60.8		30	101	09/04/2019
Surr: 2-Fluorobiphenyl				0.000697	0.00100C		69.7		30	133	09/04/2019
Surr: Nitrobenzene-d5				0.000793	0.00100C		79.3		39.8	123	09/04/2019
Surr: p-Terphenyl-d14				0.000899	0.00100C		89.9		48.1	144	09/04/2019

Batch 156900 SampType: LCSD Units mg/L RPD Limit 40

Batch	156900	SampType	LCSD	Units	mg/L	RPD Limit	40			Date Analyzed	
SampID:	LCS-156900										
Analyses		RL	Qual	Result	Spike	SPK	Ref Val	%REC	RPD Ref Val	%RPD	
1,4-Dioxane		0.00100		0.00107	0.00200C	0	53.6		0.001216	12.49	09/04/2019
Surr: 2-Fluorobiphenyl				0.000700	0.00100C		70.0				09/04/2019
Surr: Nitrobenzene-d5				0.000754	0.00100C		75.4				09/04/2019
Surr: p-Terphenyl-d14				0.000910	0.00100C		91.0				09/04/2019

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Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 156936	SampType: MBLK	Units µg/L	Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
			SampID: MBLK-N190903A-1									
1,1,1,2-Tetrachloroethane		2.0				ND						09/03/2019
1,1,1-Trichloroethane		2.0				ND						09/03/2019
1,1,2,2-Tetrachloroethane		2.0				ND						09/03/2019
1,1,2-Trichloro-1,2,2-trifluoroethane		5.0				ND						09/03/2019
1,1,2-Trichloroethane		0.5				ND						09/03/2019
1,1-Dichloro-2-propanone		30.0				ND						09/03/2019
1,1-Dichloroethane		2.0				ND						09/03/2019
1,1-Dichloroethene		2.0				ND						09/03/2019
1,1-Dichloropropene		2.0				ND						09/03/2019
1,2,3-Trichlorobenzene		2.0				ND						09/03/2019
1,2,3-Trichloropropane		2.0				ND						09/03/2019
1,2,3-Trimethylbenzene		2.0				ND						09/03/2019
1,2,4-Trichlorobenzene		2.0				ND						09/03/2019
1,2,4-Trimethylbenzene		2.0				ND						09/03/2019
1,2-Dibromo-3-chloropropane		5.0				ND						09/03/2019
1,2-Dibromoethane		2.0				ND						09/03/2019
1,2-Dichlorobenzene		2.0				ND						09/03/2019
1,2-Dichloroethane		2.0				ND						09/03/2019
1,2-Dichloropropane		2.0				ND						09/03/2019
1,3,5-Trimethylbenzene		2.0				ND						09/03/2019
1,3-Dichlorobenzene		2.0				ND						09/03/2019
1,3-Dichloropropane		2.0				ND						09/03/2019
1,4-Dichlorobenzene		2.0				ND						09/03/2019
1-Chlorobutane		5.0				ND						09/03/2019
2,2-Dichloropropane		2.0				ND						09/03/2019
2-Butanone		10.0				ND						09/03/2019
2-Chloroethyl vinyl ether		5.0				ND						09/03/2019
2-Chlorotoluene		2.0				ND						09/03/2019
2-Hexanone		10.0				ND						09/03/2019
2-Nitropropane		10.0				ND						09/03/2019
4-Chlorotoluene		2.0				ND						09/03/2019
4-Methyl-2-pentanone		10.0				ND						09/03/2019
Acetone		10.0				ND						09/03/2019
Acetonitrile		10.0				ND						09/03/2019
Acrolein		20.0				ND						09/03/2019
Acrylonitrile		5.0				ND						09/03/2019
Allyl chloride		5.0				ND						09/03/2019
Benzene		0.5				ND						09/03/2019
Bromobenzene		2.0				ND						09/03/2019
Bromochloromethane		2.0				ND						09/03/2019
Bromodichloromethane		2.0				ND						09/03/2019
Bromoform		2.0				ND						09/03/2019
Bromomethane		5.0				ND						09/03/2019
Carbon disulfide		2.0				ND						09/03/2019
Carbon tetrachloride		2.0				ND						09/03/2019
Chlorobenzene		2.0				ND						09/03/2019
Chloroethane		2.0				ND						09/03/2019

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Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch	156936	SampType	MBLK	Units	µg/L	Analyses	RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed				
						SampID:	MBLK-N190903A-1													
Chloroform				2.0					ND								09/03/2019			
Chloromethane				5.0					ND								09/03/2019			
Chloroprene				5.0					ND								09/03/2019			
cis-1,2-Dichloroethene				2.0					ND								09/03/2019			
cis-1,3-Dichloropropene				2.0					ND								09/03/2019			
cis-1,4-Dichloro-2-butene				2.0					ND								09/03/2019			
Cyclohexanone				20.0					ND								09/03/2019			
Dibromochloromethane				2.0					ND								09/03/2019			
Dibromomethane				2.0					ND								09/03/2019			
Dichlorodifluoromethane				2.0					ND								09/03/2019			
Ethyl acetate				10.0					ND								09/03/2019			
Ethyl ether				5.0					ND								09/03/2019			
Ethyl methacrylate				5.0					ND								09/03/2019			
Ethylbenzene				2.0					ND								09/03/2019			
Hexachlorobutadiene				5.0					ND								09/03/2019			
Hexachloroethane				5.0					ND								09/03/2019			
Iodomethane				5.0					ND								09/03/2019			
Isopropylbenzene				2.0					ND								09/03/2019			
m,p-Xylenes				2.0					ND								09/03/2019			
Methacrylonitrile				5.0					ND								09/03/2019			
Methyl Methacrylate				5.0					ND								09/03/2019			
Methyl tert-butyl ether				2.0					ND								09/03/2019			
Methylacrylate				5.0					ND								09/03/2019			
Methylene chloride				10.0					ND								09/03/2019			
Naphthalene				5.0					ND								09/03/2019			
n-Butyl acetate				2.0					ND								09/03/2019			
n-Butylbenzene				2.0					ND								09/03/2019			
n-Heptane				5.0					ND								09/03/2019			
n-Hexane				5.0					ND								09/03/2019			
Nitrobenzene				50.0					ND								09/03/2019			
n-Propylbenzene				2.0					ND								09/03/2019			
o-Xylene				2.0					ND								09/03/2019			
Pentachloroethane				5.0					ND								09/03/2019			
p-Isopropyltoluene				2.0					ND								09/03/2019			
Propionitrile				10.0					ND								09/03/2019			
sec-Butylbenzene				2.0					ND								09/03/2019			
Styrene				2.0					ND								09/03/2019			
tert-Butylbenzene				2.0					ND								09/03/2019			
Tetrachloroethene				0.5					ND								09/03/2019			
Tetrahydrofuran				5.0					ND								09/03/2019			
Toluene				2.0					ND								09/03/2019			
trans-1,2-Dichloroethene				2.0					ND								09/03/2019			
trans-1,3-Dichloropropene				2.0					ND								09/03/2019			
trans-1,4-Dichloro-2-butene				2.0					ND								09/03/2019			
Trichloroethene				2.0					ND								09/03/2019			
Trichlorofluoromethane				5.0					ND								09/03/2019			
Vinyl acetate				5.0					ND								09/03/2019			



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Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch	156936	SampType	MBLK	Units	µg/L							
SampID: MBLK-N190903A-1												
Analyses		RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed	
Vinyl chloride		2.0		ND							09/03/2019	
Surr: 1,2-Dichloroethane-d4				43.9	50.00		87.9		79.6	118	09/03/2019	
Surr: 4-Bromofluorobenzene				46.1	50.00		92.3		83.9	115	09/03/2019	
Surr: Toluene-d8				49.3	50.00		98.6		86.7	112	09/03/2019	

Quality Control Results

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Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 156936	SampType: LCSD	Units µg/L	RPD Limit 40									
SampleID: LCSD-N190903A-1			Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,1,1,2-Tetrachloroethane		2.0		48.8	50.00	0	97.7	47.57	2.66	09/03/2019		
1,1,1-Trichloroethane		2.0		47.2	50.00	0	94.4	47.83	1.33	09/03/2019		
1,1,2,2-Tetrachloroethane		2.0		47.6	50.00	0	95.2	46.01	3.40	09/03/2019		
1,1,2-Trichloro-1,2,2-trifluoroethane		5.0		51.7	50.00	0	103.5	54.32	4.87	09/03/2019		
1,1,2-Trichloroethane		0.5		49.2	50.00	0	98.3	50.02	1.71	09/03/2019		
1,1-Dichloro-2-propanone		30.0		111	125.0	0	89.0	111.1	0.14	09/03/2019		
1,1-Dichloroethane		2.0		46.0	50.00	0	91.9	47.67	3.67	09/03/2019		
1,1-Dichloroethene		2.0		47.6	50.00	0	95.2	49.32	3.57	09/03/2019		
1,1-Dichloropropene		2.0		50.4	50.00	0	100.7	51.77	2.74	09/03/2019		
1,2,3-Trichlorobenzene		2.0		49.8	50.00	0	99.6	50.13	0.62	09/03/2019		
1,2,3-Trichloropropane		2.0		45.1	50.00	0	90.2	44.82	0.64	09/03/2019		
1,2,3-Trimethylbenzene		2.0		47.7	50.00	0	95.5	47.72	0.02	09/03/2019		
1,2,4-Trichlorobenzene		2.0		49.1	50.00	0	98.2	50.89	3.56	09/03/2019		
1,2,4-Trimethylbenzene		2.0		47.8	50.00	0	95.6	48.21	0.90	09/03/2019		
1,2-Dibromo-3-chloropropane		5.0		41.0	50.00	0	81.9	41.59	1.50	09/03/2019		
1,2-Dibromoethane		2.0		49.4	50.00	0	98.8	47.56	3.78	09/03/2019		
1,2-Dichlorobenzene		2.0		51.2	50.00	0	102.3	47.94	6.52	09/03/2019		
1,2-Dichloroethane		2.0		42.6	50.00	0	85.1	43.87	3.03	09/03/2019		
1,2-Dichloropropane		2.0		47.2	50.00	0	94.4	47.68	1.03	09/03/2019		
1,3,5-Trimethylbenzene		2.0		47.7	50.00	0	95.5	47.02	1.50	09/03/2019		
1,3-Dichlorobenzene		2.0		49.9	50.00	0	99.9	49.62	0.62	09/03/2019		
1,3-Dichloropropane		2.0		47.4	50.00	0	94.8	47.27	0.25	09/03/2019		
1,4-Dichlorobenzene		2.0		49.4	50.00	0	98.9	48.99	0.89	09/03/2019		
1-Chlorobutane		5.0		48.6	50.00	0	97.3	49.12	1.00	09/03/2019		
2,2-Dichloropropane		2.0		48.6	50.00	0	97.3	49.57	1.91	09/03/2019		
2-Butanone		10.0		111	125.0	0	89.1	115.5	3.60	09/03/2019		
2-Chloroethyl vinyl ether		5.0		44.6	50.00	0	89.3	46.70	4.49	09/03/2019		
2-Chlorotoluene		2.0		49.7	50.00	0	99.4	48.90	1.58	09/03/2019		
2-Hexanone		10.0		112	125.0	0	89.6	111.8	0.08	09/03/2019		
2-Nitropropane		10.0		425	500.0	0	85.0	425.4	0.09	09/03/2019		
4-Chlorotoluene		2.0		48.4	50.00	0	96.8	46.76	3.49	09/03/2019		
4-Methyl-2-pentanone		10.0		117	125.0	0	93.4	116.1	0.58	09/03/2019		
Acetone		10.0		98.3	125.0	0	78.7	104.6	6.22	09/03/2019		
Acetonitrile		10.0		440	500.0	0	88.0	470.5	6.67	09/03/2019		
Acrolein		20.0		528	500.0	0	105.6	535.2	1.37	09/03/2019		
Acrylonitrile		5.0		46.6	50.00	0	93.2	48.82	4.70	09/03/2019		
Allyl chloride		5.0		52.7	50.00	0	105.4	53.66	1.82	09/03/2019		
Benzene		0.5		48.7	50.00	0	97.4	51.76	6.11	09/03/2019		
Bromobenzene		2.0		49.3	50.00	0	98.6	47.59	3.53	09/03/2019		
Bromochloromethane		2.0		43.4	50.00	0	86.8	44.89	3.33	09/03/2019		
Bromodichloromethane		2.0		43.9	50.00	0	87.7	46.31	5.41	09/03/2019		
Bromoform		2.0		47.2	50.00	0	94.3	45.92	2.64	09/03/2019		
Bromomethane		5.0		32.0	50.00	0	64.0	31.94	0.25	09/03/2019		
Carbon disulfide		2.0		48.8	50.00	0	97.6	49.04	0.45	09/03/2019		
Carbon tetrachloride		2.0		48.7	50.00	0	97.3	49.29	1.27	09/03/2019		
Chlorobenzene		2.0		50.5	50.00	0	101.0	50.10	0.80	09/03/2019		
Chloroethane		2.0		53.5	50.00	0	107.0	57.36	6.96	09/03/2019		

Quality Control Results

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Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch	156936	SampType	LCSD	Units	µg/L	RPD Limit 40									Date Analyzed
				Sample ID:	LCSD-N190903A-1	Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	
Chloroform				2.0		47.2	50.00	0	94.3		46.82	0.72		09/03/2019	
Chloromethane				5.0		57.5	50.00	0	114.9		59.03	2.70		09/03/2019	
Chloroprene				5.0		46.7	50.00	0	93.4		47.06	0.73		09/03/2019	
cis-1,2-Dichloroethene				2.0		50.9	50.00	0	101.9		51.43	0.96		09/03/2019	
cis-1,3-Dichloropropene				2.0		47.6	50.00	0	95.1		49.36	3.74		09/03/2019	
cis-1,4-Dichloro-2-butene				2.0		41.8	50.00	0	83.7		42.37	1.28		09/03/2019	
Cyclohexanone				20.0		440	500.0	0	88.0		441.3	0.27		09/03/2019	
Dibromochloromethane				2.0		49.4	50.00	0	98.8		46.83	5.34		09/03/2019	
Dibromomethane				2.0		48.2	50.00	0	96.5		48.59	0.74		09/03/2019	
Dichlorodifluoromethane				2.0		41.2	50.00	0	82.3		40.92	0.56		09/03/2019	
Ethyl acetate				10.0		46.6	50.00	0	93.3		47.12	1.02		09/03/2019	
Ethyl ether				5.0		45.7	50.00	0	91.4		48.15	5.20		09/03/2019	
Ethyl methacrylate				5.0		50.7	50.00	0	101.4		51.31	1.20		09/03/2019	
Ethylbenzene				2.0		50.8	50.00	0	101.6		49.48	2.63		09/03/2019	
Hexachlorobutadiene				5.0		49.9	50.00	0	99.8		49.67	0.44		09/03/2019	
Hexachloroethane				5.0		46.7	50.00	0	93.4		45.70	2.16		09/03/2019	
Iodomethane				5.0		49.0	50.00	0	98.1		50.27	2.48		09/03/2019	
Isopropylbenzene				2.0		52.3	50.00	0	104.6		51.87	0.86		09/03/2019	
m,p-Xylenes				2.0		103	100.0	0	103.4		100.5	2.87		09/03/2019	
Methacrylonitrile				5.0		44.2	50.00	0	88.4		45.47	2.79		09/03/2019	
Methyl Methacrylate				5.0		45.0	50.00	0	90.0		44.48	1.14		09/03/2019	
Methyl tert-butyl ether				2.0		46.4	50.00	0	92.8		48.76	4.92		09/03/2019	
Methylacrylate				5.0		46.0	50.00	0	91.9		47.26	2.79		09/03/2019	
Methylene chloride				10.0		43.6	50.00	0	87.1		44.97	3.21		09/03/2019	
Naphthalene				5.0		52.4	50.00	0	104.7		52.84	0.91		09/03/2019	
n-Butyl acetate				2.0		45.8	50.00	0	91.7		45.04	1.74		09/03/2019	
n-Butylbenzene				2.0		53.2	50.00	0	106.4		51.31	3.58		09/03/2019	
n-Heptane				5.0		49.8	50.00	0	99.5		52.20	4.81		09/03/2019	
n-Hexane				5.0		51.3	50.00	0	102.7		53.66	4.42		09/03/2019	
Nitrobenzene				50.0		361	500.0	0	72.2		351.0	2.83		09/03/2019	
n-Propylbenzene				2.0		51.3	50.00	0	102.6		50.64	1.26		09/03/2019	
o-Xylene				2.0		51.1	50.00	0	102.1		49.83	2.46		09/03/2019	
Pentachloroethane				5.0		47.4	50.00	0	94.8		46.75	1.42		09/03/2019	
p-Isopropyltoluene				2.0		53.0	50.00	0	106.0		51.93	2.00		09/03/2019	
Propionitrile				10.0		487	500.0	0	97.3		503.0	3.31		09/03/2019	
sec-Butylbenzene				2.0		52.2	50.00	0	104.3		51.24	1.78		09/03/2019	
Styrene				2.0		51.5	50.00	0	102.9		49.90	3.10		09/03/2019	
tert-Butylbenzene				2.0		48.5	50.00	0	96.9		48.67	0.41		09/03/2019	
Tetrachloroethene				0.5		52.8	50.00	0	105.7		51.53	2.53		09/03/2019	
Tetrahydrofuran				5.0		42.6	50.00	0	85.2		44.84	5.08		09/03/2019	
Toluene				2.0		51.0	50.00	0	102.1		50.17	1.74		09/03/2019	
trans-1,2-Dichloroethene				2.0		47.5	50.00	0	95.0		49.84	4.79		09/03/2019	
trans-1,3-Dichloropropene				2.0		46.4	50.00	0	92.9		44.61	4.02		09/03/2019	
trans-1,4-Dichloro-2-butene				2.0		40.6	50.00	0	81.2		40.02	1.46		09/03/2019	
Trichloroethene				2.0		48.7	50.00	0	97.5		51.00	4.55		09/03/2019	
Trichlorofluoromethane				5.0		49.1	50.00	0	98.2		50.41	2.65		09/03/2019	
Vinyl acetate				5.0		53.0	50.00	0	106.1		55.20	4.01		09/03/2019	



Quality Control Results

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Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch	156936	SampType	LCSD	Units	µg/L	RPD Limit 40						
SampID:	LCSD-N190903A-1											
Analyses		RL	Qual		Result	Spike	SPK	Ref Val	%REC	RPD	Ref Val	%RPD
Vinyl chloride		2.0			56.6	50.00	0	113.2		55.75	1.51	09/03/2019
Surr: 1,2-Dichloroethane-d4					42.2	50.00		84.4				09/03/2019
Surr: 4-Bromofluorobenzene					48.0	50.00		96.0				09/03/2019
Surr: Toluene-d8					48.8	50.00		97.6				09/03/2019

Quality Control Results

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Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 156936	SampType: LCS	Units µg/L								
Analyses	RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1,2-Tetrachloroethane	2.0		47.6	50.00	0	95.1		83.4	118	09/03/2019
1,1,1-Trichloroethane	2.0		47.8	50.00	0	95.7		79.1	123	09/03/2019
1,1,2,2-Tetrachloroethane	2.0		46.0	50.00	0	92.0		70.7	121	09/03/2019
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0		54.3	50.00	0	108.6		75.2	133	09/03/2019
1,1,2-Trichloroethane	0.5		50.0	50.00	0	100.0		79.8	117	09/03/2019
1,1-Dichloro-2-propanone	30.0		111	125.0	0	88.9		63.8	122	09/03/2019
1,1-Dichloroethane	2.0		47.7	50.00	0	95.3		75.1	122	09/03/2019
1,1-Dichloroethene	2.0		49.3	50.00	0	98.6		68.3	121	09/03/2019
1,1-Dichloropropene	2.0		51.8	50.00	0	103.5		76.7	122	09/03/2019
1,2,3-Trichlorobenzene	2.0		50.1	50.00	0	100.3		77.1	130	09/03/2019
1,2,3-Trichloropropane	2.0		44.8	50.00	0	89.6		70.6	114	09/03/2019
1,2,3-Trimethylbenzene	2.0		47.7	50.00	0	95.4		77.4	117	09/03/2019
1,2,4-Trichlorobenzene	2.0		50.9	50.00	0	101.8		79.6	128	09/03/2019
1,2,4-Trimethylbenzene	2.0		48.2	50.00	0	96.4		78.9	117	09/03/2019
1,2-Dibromo-3-chloropropane	5.0		41.6	50.00	0	83.2		68.1	123	09/03/2019
1,2-Dibromoethane	2.0		47.6	50.00	0	95.1		82.9	114	09/03/2019
1,2-Dichlorobenzene	2.0		47.9	50.00	0	95.9		75.2	120	09/03/2019
1,2-Dichloroethane	2.0		43.9	50.00	0	87.7		76.9	117	09/03/2019
1,2-Dichloropropane	2.0		47.7	50.00	0	95.4		76.4	121	09/03/2019
1,3,5-Trimethylbenzene	2.0		47.0	50.00	0	94.0		79.8	118	09/03/2019
1,3-Dichlorobenzene	2.0		49.6	50.00	0	99.2		80.5	119	09/03/2019
1,3-Dichloropropane	2.0		47.3	50.00	0	94.5		77.5	113	09/03/2019
1,4-Dichlorobenzene	2.0		49.0	50.00	0	98.0		80.2	115	09/03/2019
1-Chlorobutane	5.0		49.1	50.00	0	98.2		75.1	123	09/03/2019
2,2-Dichloropropane	2.0		49.6	50.00	0	99.1		62.4	151	09/03/2019
2-Butanone	10.0		115	125.0	0	92.4		65.7	120	09/03/2019
2-Chloroethyl vinyl ether	5.0		46.7	50.00	0	93.4		31.5	159	09/03/2019
2-Chlorotoluene	2.0		48.9	50.00	0	97.8		76	117	09/03/2019
2-Hexanone	10.0		112	125.0	0	89.5		65.1	121	09/03/2019
2-Nitropropane	10.0		425	500.0	0	85.1		70.5	133	09/03/2019
4-Chlorotoluene	2.0		46.8	50.00	0	93.5		77	117	09/03/2019
4-Methyl-2-pentanone	10.0		116	125.0	0	92.9		69.6	117	09/03/2019
Acetone	10.0		105	125.0	0	83.7		47.5	123	09/03/2019
Acetonitrile	10.0		470	500.0	0	94.1		56	136	09/03/2019
Acrolein	20.0		535	500.0	0	107.0		27	164	09/03/2019
Acrylonitrile	5.0		48.8	50.00	0	97.6		74.8	127	09/03/2019
Allyl chloride	5.0		53.7	50.00	0	107.3		66.3	134	09/03/2019
Benzene	0.5		51.8	50.00	0	103.5		75.8	121	09/03/2019
Bromobenzene	2.0		47.6	50.00	0	95.2		72.7	119	09/03/2019
Bromochloromethane	2.0		44.9	50.00	0	89.8		69	123	09/03/2019
Bromodichloromethane	2.0		46.3	50.00	0	92.6		80.8	128	09/03/2019
Bromoform	2.0		45.9	50.00	0	91.8		85.5	128	09/03/2019
Bromomethane	5.0		31.9	50.00	0	63.9		-36.7	277	09/03/2019
Carbon disulfide	2.0		49.0	50.00	0	98.1		64.9	133	09/03/2019
Carbon tetrachloride	2.0		49.3	50.00	0	98.6		79.5	129	09/03/2019
Chlorobenzene	2.0		50.1	50.00	0	100.2		82.1	113	09/03/2019
Chloroethane	2.0		57.4	50.00	0	114.7		43.9	138	09/03/2019

Quality Control Results

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Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 156936	SampType: LCS	Units µg/L							
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloroform	2.0		46.8	50.00	0	93.6	80.1	122	09/03/2019
Chloromethane	5.0		59.0	50.00	0	118.1	50.8	131	09/03/2019
Chloroprene	5.0		47.1	50.00	0	94.1	74.4	123	09/03/2019
cis-1,2-Dichloroethene	2.0		51.4	50.00	0	102.9	78.6	119	09/03/2019
cis-1,3-Dichloropropene	2.0		49.4	50.00	0	98.7	79	129	09/03/2019
cis-1,4-Dichloro-2-butene	2.0		42.4	50.00	0	84.7	59.7	125	09/03/2019
Cyclohexanone	20.0		441	500.0	0	88.3	15.1	162	09/03/2019
Dibromochloromethane	2.0		46.8	50.00	0	93.7	88.1	123	09/03/2019
Dibromomethane	2.0		48.6	50.00	0	97.2	75.3	120	09/03/2019
Dichlorodifluoromethane	2.0		40.9	50.00	0	81.8	35.7	155	09/03/2019
Ethyl acetate	10.0		47.1	50.00	0	94.2	66.6	119	09/03/2019
Ethyl ether	5.0		48.2	50.00	0	96.3	74.4	120	09/03/2019
Ethyl methacrylate	5.0		51.3	50.00	0	102.6	80.6	123	09/03/2019
Ethylbenzene	2.0		49.5	50.00	0	99.0	80.7	114	09/03/2019
Hexachlorobutadiene	5.0		49.7	50.00	0	99.3	68.2	141	09/03/2019
Hexachloroethane	5.0		45.7	50.00	0	91.4	69.4	125	09/03/2019
Iodomethane	5.0		50.3	50.00	0	100.5	-19.1	196	09/03/2019
Isopropylbenzene	2.0		51.9	50.00	0	103.7	81.3	116	09/03/2019
m,p-Xylenes	2.0		100	100.0	0	100.5	80.5	113	09/03/2019
Methacrylonitrile	5.0		45.5	50.00	0	90.9	75.3	122	09/03/2019
Methyl Methacrylate	5.0		44.5	50.00	0	89.0	71.9	121	09/03/2019
Methyl tert-butyl ether	2.0		48.8	50.00	0	97.5	79.5	121	09/03/2019
Methylacrylate	5.0		47.3	50.00	0	94.5	71.2	129	09/03/2019
Methylene chloride	10.0		45.0	50.00	0	89.9	76.2	119	09/03/2019
Naphthalene	5.0		52.8	50.00	0	105.7	76.1	129	09/03/2019
n-Butyl acetate	2.0		45.0	50.00	0	90.1	62.9	121	09/03/2019
n-Butylbenzene	2.0		51.3	50.00	0	102.6	71.6	122	09/03/2019
n-Heptane	5.0		52.2	50.00	0	104.4	55.1	130	09/03/2019
n-Hexane	5.0		53.7	50.00	0	107.3	61.9	131	09/03/2019
Nitrobenzene	50.0		351	500.0	0	70.2	32.2	151	09/03/2019
n-Propylbenzene	2.0		50.6	50.00	0	101.3	76	120	09/03/2019
o-Xylene	2.0		49.8	50.00	0	99.7	79.7	112	09/03/2019
Pentachloroethane	5.0		46.8	50.00	0	93.5	78.3	128	09/03/2019
p-Isopropyltoluene	2.0		51.9	50.00	0	103.9	76.2	122	09/03/2019
Propionitrile	10.0		503	500.0	0	100.6	67.8	125	09/03/2019
sec-Butylbenzene	2.0		51.2	50.00	0	102.5	76.6	119	09/03/2019
Styrene	2.0		49.9	50.00	0	99.8	82.8	116	09/03/2019
tert-Butylbenzene	2.0		48.7	50.00	0	97.3	74.7	117	09/03/2019
Tetrachloroethene	0.5		51.5	50.00	0	103.1	80.6	122	09/03/2019
Tetrahydrofuran	5.0		44.8	50.00	0	89.7	65.4	116	09/03/2019
Toluene	2.0		50.2	50.00	0	100.3	78.3	112	09/03/2019
trans-1,2-Dichloroethene	2.0		49.8	50.00	0	99.7	73.5	124	09/03/2019
trans-1,3-Dichloropropene	2.0		44.6	50.00	0	89.2	83.4	124	09/03/2019
trans-1,4-Dichloro-2-butene	2.0		40.0	50.00	0	80.0	58.9	132	09/03/2019
Trichloroethene	2.0		51.0	50.00	0	102.0	74.3	125	09/03/2019
Trichlorofluoromethane	5.0		50.4	50.00	0	100.8	71.5	136	09/03/2019
Vinyl acetate	5.0		55.2	50.00	0	110.4	65.9	136	09/03/2019

Quality Control Results

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Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch	156936	SampType	LCS	Units	µg/L						Date Analyzed
SampID:	LCS-N190903A-1										
Analyses		RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	
Vinyl chloride		2.0		55.8	50.00	0	111.5		55.8	135	09/03/2019
Surr: 1,2-Dichloroethane-d4				45.4	50.00		90.8		79.6	118	09/03/2019
Surr: 4-Bromofluorobenzene				48.4	50.00		96.9		83.9	115	09/03/2019
Surr: Toluene-d8				49.9	50.00		99.9		86.7	112	09/03/2019

Batch 156936 SampType: LCSGD Units %REC RPD Limit 0

Batch	156936	SampType	LCSGD	Units	%REC	RPD	Limit	0		Date Analyzed
SampID:	LCSGD-N190903A-1									
Analyses		RL	Qual	Result	Spike	SPK	Ref Val	%REC	RPD Ref Val	%RPD
Surr: 1,2-Dichloroethane-d4				44.2	50.00		88.3			09/03/2019
Surr: 4-Bromofluorobenzene				46.8	50.00		93.6			09/03/2019
Surr: Toluene-d8				49.1	50.00		98.1			09/03/2019

Batch 156936 SampType: LCSG Units %REC

Batch	156936	SampType	LCSG	Units	%REC					Date Analyzed	
SampID:	LCSG-N190903A-1										
Analyses		RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	
Surr: 1,2-Dichloroethane-d4				46.0	50.00		92.0		79.6	118	09/03/2019
Surr: 4-Bromofluorobenzene				47.3	50.00		94.6		83.9	115	09/03/2019
Surr: Toluene-d8				50.0	50.00		99.9		86.7	112	09/03/2019

Quality Control Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 156975	SampType: MBLK	Units µg/L	Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
			SampID: MBLK-AE190904A-1									
1,1,1,2-Tetrachloroethane		2.0				ND						09/04/2019
1,1,1-Trichloroethane		2.0				ND						09/04/2019
1,1,2,2-Tetrachloroethane		2.0				ND						09/04/2019
1,1,2-Trichloro-1,2,2-trifluoroethane		5.0				ND						09/04/2019
1,1,2-Trichloroethane		0.5				ND						09/04/2019
1,1-Dichloro-2-propanone		30.0				ND						09/04/2019
1,1-Dichloroethane		2.0				ND						09/04/2019
1,1-Dichloroethene		2.0				ND						09/04/2019
1,1-Dichloropropene		2.0				ND						09/04/2019
1,2,3-Trichlorobenzene		2.0				ND						09/04/2019
1,2,3-Trichloropropane		2.0				ND						09/04/2019
1,2,3-Trimethylbenzene		2.0				ND						09/04/2019
1,2,4-Trichlorobenzene		2.0				ND						09/04/2019
1,2,4-Trimethylbenzene		2.0				ND						09/04/2019
1,2-Dibromo-3-chloropropane		5.0				ND						09/04/2019
1,2-Dibromoethane		2.0				ND						09/04/2019
1,2-Dichlorobenzene		2.0				ND						09/04/2019
1,2-Dichloroethane		2.0				ND						09/04/2019
1,2-Dichloropropane		2.0				ND						09/04/2019
1,3,5-Trimethylbenzene		2.0				ND						09/04/2019
1,3-Dichlorobenzene		2.0				ND						09/04/2019
1,3-Dichloropropane		2.0				ND						09/04/2019
1,4-Dichlorobenzene		2.0				ND						09/04/2019
1-Chlorobutane		5.0				ND						09/04/2019
2,2-Dichloropropane		2.0				ND						09/04/2019
2-Butanone		10.0				ND						09/04/2019
2-Chloroethyl vinyl ether		5.0				ND						09/04/2019
2-Chlorotoluene		2.0				ND						09/04/2019
2-Hexanone		10.0				ND						09/04/2019
2-Nitropropane		10.0				ND						09/04/2019
4-Chlorotoluene		2.0				ND						09/04/2019
4-Methyl-2-pentanone		10.0				ND						09/04/2019
Acetone		10.0				ND						09/04/2019
Acetonitrile		10.0				ND						09/04/2019
Acrolein		20.0				ND						09/04/2019
Acrylonitrile		5.0				ND						09/04/2019
Allyl chloride		5.0				ND						09/04/2019
Benzene		0.5				ND						09/04/2019
Bromobenzene		2.0				ND						09/04/2019
Bromochloromethane		2.0				ND						09/04/2019
Bromodichloromethane		2.0				ND						09/04/2019
Bromoform		2.0				ND						09/04/2019
Bromomethane		5.0				ND						09/04/2019
Carbon disulfide		2.0				ND						09/04/2019
Carbon tetrachloride		2.0				ND						09/04/2019
Chlorobenzene		2.0				ND						09/04/2019
Chloroethane		2.0				ND						09/04/2019

Quality Control Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 156975	SampType: MBLK	Units µg/L	Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
			SampID: MBLK-AE190904A-1									
Chloroform		2.0				ND						09/04/2019
Chloromethane		5.0				ND						09/04/2019
Chloroprene		5.0				ND						09/04/2019
cis-1,2-Dichloroethene		2.0				ND						09/04/2019
cis-1,3-Dichloropropene		2.0				ND						09/04/2019
cis-1,4-Dichloro-2-butene		2.0				ND						09/04/2019
Cyclohexanone		20.0				ND						09/04/2019
Dibromochloromethane		2.0				ND						09/04/2019
Dibromomethane		2.0				ND						09/04/2019
Dichlorodifluoromethane		2.0				ND						09/04/2019
Ethyl acetate		10.0				ND						09/04/2019
Ethyl ether		5.0				ND						09/04/2019
Ethyl methacrylate		5.0				ND						09/04/2019
Ethylbenzene		2.0				ND						09/04/2019
Hexachlorobutadiene		5.0				ND						09/04/2019
Hexachloroethane		5.0				ND						09/04/2019
Iodomethane		5.0				ND						09/04/2019
Isopropylbenzene		2.0				ND						09/04/2019
m,p-Xylenes		2.0				ND						09/04/2019
Methacrylonitrile		5.0				ND						09/04/2019
Methyl Methacrylate		5.0				ND						09/04/2019
Methyl tert-butyl ether		2.0				ND						09/04/2019
Methylacrylate		5.0				ND						09/04/2019
Methylene chloride		10.0				ND						09/04/2019
Naphthalene		5.0				ND						09/04/2019
n-Butyl acetate		2.0				ND						09/04/2019
n-Butylbenzene		2.0				ND						09/04/2019
n-Heptane		5.0				ND						09/04/2019
n-Hexane		5.0				ND						09/04/2019
Nitrobenzene		50.0				ND						09/04/2019
n-Propylbenzene		2.0				ND						09/04/2019
o-Xylene		2.0				ND						09/04/2019
Pentachloroethane		5.0				ND						09/04/2019
p-Isopropyltoluene		2.0				ND						09/04/2019
Propionitrile		10.0				ND						09/04/2019
sec-Butylbenzene		2.0				ND						09/04/2019
Styrene		2.0				ND						09/04/2019
tert-Butylbenzene		2.0				ND						09/04/2019
Tetrachloroethene		0.5				ND						09/04/2019
Tetrahydrofuran		5.0				ND						09/04/2019
Toluene		2.0				ND						09/04/2019
trans-1,2-Dichloroethene		2.0				ND						09/04/2019
trans-1,3-Dichloropropene		2.0				ND						09/04/2019
trans-1,4-Dichloro-2-butene		2.0				ND						09/04/2019
Trichloroethene		2.0				ND						09/04/2019
Trichlorofluoromethane		5.0				ND						09/04/2019
Vinyl acetate		5.0				ND						09/04/2019



Quality Control Results

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Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 156975 SampType: MBLK Units µg/L

SampID: MBLK-AE190904A-1

Analyses	RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Vinyl chloride	2.0		ND							09/04/2019
Surr: 1,2-Dichloroethane-d4			49.4	50.00		98.9		79.6	118	09/04/2019
Surr: 4-Bromofluorobenzene			50.8	50.00		101.7		83.9	115	09/04/2019
Surr: Dibromofluoromethane			48.9	50.00		97.9		84.9	113	09/04/2019
Surr: Toluene-d8			50.4	50.00		100.8		86.7	112	09/04/2019

Quality Control Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 156975	SampType: LCS	Units µg/L							
SampID: LCS-AE190904A-1									Date Analyzed
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	
1,1,1,2-Tetrachloroethane	2.0		49.0	50.00	0	98.0	83.4	118	09/04/2019
1,1,1-Trichloroethane	2.0		51.8	50.00	0	103.6	79.1	123	09/04/2019
1,1,2,2-Tetrachloroethane	2.0		49.0	50.00	0	97.9	70.7	121	09/04/2019
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0		51.3	50.00	0	102.6	75.2	133	09/04/2019
1,1,2-Trichloroethane	0.5		48.6	50.00	0	97.3	79.8	117	09/04/2019
1,1-Dichloro-2-propanone	30.0		125	125.0	0	100.3	63.8	122	09/04/2019
1,1-Dichloroethane	2.0		51.0	50.00	0	101.9	75.1	122	09/04/2019
1,1-Dichloroethene	2.0		51.6	50.00	0	103.3	68.3	121	09/04/2019
1,1-Dichloropropene	2.0		49.4	50.00	0	98.8	76.7	122	09/04/2019
1,2,3-Trichlorobenzene	2.0		50.6	50.00	0	101.1	77.1	130	09/04/2019
1,2,3-Trichloropropane	2.0		47.9	50.00	0	95.8	70.6	114	09/04/2019
1,2,3-Trimethylbenzene	2.0		49.9	50.00	0	99.8	77.4	117	09/04/2019
1,2,4-Trichlorobenzene	2.0		50.7	50.00	0	101.4	79.6	128	09/04/2019
1,2,4-Trimethylbenzene	2.0		49.4	50.00	0	98.8	78.9	117	09/04/2019
1,2-Dibromo-3-chloropropane	5.0		50.0	50.00	0	100.1	68.1	123	09/04/2019
1,2-Dibromoethane	2.0		47.6	50.00	0	95.2	82.9	114	09/04/2019
1,2-Dichlorobenzene	2.0		47.5	50.00	0	94.9	75.2	120	09/04/2019
1,2-Dichloroethane	2.0		46.8	50.00	0	93.6	76.9	117	09/04/2019
1,2-Dichloropropane	2.0		47.5	50.00	0	95.0	76.4	121	09/04/2019
1,3,5-Trimethylbenzene	2.0		49.5	50.00	0	99.0	79.8	118	09/04/2019
1,3-Dichlorobenzene	2.0		47.9	50.00	0	95.7	80.5	119	09/04/2019
1,3-Dichloropropane	2.0		46.8	50.00	0	93.5	77.5	113	09/04/2019
1,4-Dichlorobenzene	2.0		47.4	50.00	0	94.7	80.2	115	09/04/2019
1-Chlorobutane	5.0		51.7	50.00	0	103.3	75.1	123	09/04/2019
2,2-Dichloropropane	2.0		54.2	50.00	0	108.4	62.4	151	09/04/2019
2-Butanone	10.0		117	125.0	0	93.7	65.7	120	09/04/2019
2-Chloroethyl vinyl ether	5.0		46.7	50.00	0	93.4	31.5	159	09/04/2019
2-Chlorotoluene	2.0		49.0	50.00	0	98.0	76	117	09/04/2019
2-Hexanone	10.0		116	125.0	0	92.9	65.1	121	09/04/2019
2-Nitropropane	10.0		488	500.0	0	97.6	70.5	133	09/04/2019
4-Chlorotoluene	2.0		48.9	50.00	0	97.9	77	117	09/04/2019
4-Methyl-2-pentanone	10.0		117	125.0	0	93.3	69.6	117	09/04/2019
Acetone	10.0		113	125.0	0	90.1	47.5	123	09/04/2019
Acetonitrile	10.0		465	500.0	0	92.9	56	136	09/04/2019
Acrolein	20.0		480	500.0	0	96.1	27	164	09/04/2019
Acrylonitrile	5.0		47.9	50.00	0	95.7	74.8	127	09/04/2019
Allyl chloride	5.0		52.0	50.00	0	104.1	66.3	134	09/04/2019
Benzene	0.5		46.8	50.00	0	93.7	75.8	121	09/04/2019
Bromobenzene	2.0		48.5	50.00	0	97.0	72.7	119	09/04/2019
Bromochloromethane	2.0		46.4	50.00	0	92.8	69	123	09/04/2019
Bromodichloromethane	2.0		49.7	50.00	0	99.4	80.8	128	09/04/2019
Bromoform	2.0		49.6	50.00	0	99.2	85.5	128	09/04/2019
Bromomethane	5.0		56.3	50.00	0	112.5	-36.7	277	09/04/2019
Carbon disulfide	2.0		48.3	50.00	0	96.5	64.9	133	09/04/2019
Carbon tetrachloride	2.0		51.2	50.00	0	102.5	79.5	129	09/04/2019
Chlorobenzene	2.0		47.7	50.00	0	95.4	82.1	113	09/04/2019
Chloroethane	2.0		51.8	50.00	0	103.7	43.9	138	09/04/2019

Quality Control Results

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Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 156975	SampType: LCS	Units µg/L							
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloroform	2.0		48.7	50.00	0	97.3	80.1	122	09/04/2019
Chloromethane	5.0		47.4	50.00	0	94.9	50.8	131	09/04/2019
Chloroprene	5.0		50.5	50.00	0	100.9	74.4	123	09/04/2019
cis-1,2-Dichloroethene	2.0		49.0	50.00	0	98.1	78.6	119	09/04/2019
cis-1,3-Dichloropropene	2.0		49.4	50.00	0	98.7	79	129	09/04/2019
cis-1,4-Dichloro-2-butene	2.0		52.2	50.00	0	104.4	59.7	125	09/04/2019
Cyclohexanone	20.0		437	500.0	0	87.3	15.1	162	09/04/2019
Dibromochloromethane	2.0		49.6	50.00	0	99.2	88.1	123	09/04/2019
Dibromomethane	2.0		46.9	50.00	0	93.9	75.3	120	09/04/2019
Dichlorodifluoromethane	2.0		54.6	50.00	0	109.2	35.7	155	09/04/2019
Ethyl acetate	10.0		44.5	50.00	0	89.0	66.6	119	09/04/2019
Ethyl ether	5.0		47.8	50.00	0	95.5	74.4	120	09/04/2019
Ethyl methacrylate	5.0		48.4	50.00	0	96.8	80.6	123	09/04/2019
Ethylbenzene	2.0		48.1	50.00	0	96.2	80.7	114	09/04/2019
Hexachlorobutadiene	5.0		54.5	50.00	0	109.0	68.2	141	09/04/2019
Hexachloroethane	5.0		54.7	50.00	0	109.4	69.4	125	09/04/2019
Iodomethane	5.0		52.1	50.00	0	104.1	-19.1	196	09/04/2019
Isopropylbenzene	2.0		48.8	50.00	0	97.6	81.3	116	09/04/2019
m,p-Xylenes	2.0		96.6	100.0	0	96.6	80.5	113	09/04/2019
Methacrylonitrile	5.0		48.0	50.00	0	96.0	75.3	122	09/04/2019
Methyl Methacrylate	5.0		47.4	50.00	0	94.8	71.9	121	09/04/2019
Methyl tert-butyl ether	2.0		48.5	50.00	0	97.1	79.5	121	09/04/2019
Methylacrylate	5.0		49.1	50.00	0	98.2	71.2	129	09/04/2019
Methylene chloride	10.0		45.4	50.00	0	90.9	76.2	119	09/04/2019
Naphthalene	5.0		48.0	50.00	0	95.9	76.1	129	09/04/2019
n-Butyl acetate	2.0		46.4	50.00	0	92.7	62.9	121	09/04/2019
n-Butylbenzene	2.0		49.0	50.00	0	98.0	71.6	122	09/04/2019
n-Heptane	5.0		54.5	50.00	0	109.1	55.1	130	09/04/2019
n-Hexane	5.0		54.6	50.00	0	109.2	61.9	131	09/04/2019
Nitrobenzene	50.0		468	500.0	0	93.6	32.2	151	09/04/2019
n-Propylbenzene	2.0		50.0	50.00	0	99.9	76	120	09/04/2019
o-Xylene	2.0		48.0	50.00	0	96.0	79.7	112	09/04/2019
Pentachloroethane	5.0		52.2	50.00	0	104.4	78.3	128	09/04/2019
p-Isopropyltoluene	2.0		50.0	50.00	0	100.0	76.2	122	09/04/2019
Propionitrile	10.0		474	500.0	0	94.8	67.8	125	09/04/2019
sec-Butylbenzene	2.0		50.4	50.00	0	100.9	76.6	119	09/04/2019
Styrene	2.0		48.6	50.00	0	97.2	82.8	116	09/04/2019
tert-Butylbenzene	2.0		50.2	50.00	0	100.3	74.7	117	09/04/2019
Tetrachloroethene	0.5		48.3	50.00	0	96.7	80.6	122	09/04/2019
Tetrahydrofuran	5.0		43.1	50.00	0	86.2	65.4	116	09/04/2019
Toluene	2.0		47.6	50.00	0	95.2	78.3	112	09/04/2019
trans-1,2-Dichloroethene	2.0		52.2	50.00	0	104.3	73.5	124	09/04/2019
trans-1,3-Dichloropropene	2.0		49.0	50.00	0	97.9	83.4	124	09/04/2019
trans-1,4-Dichloro-2-butene	2.0		53.1	50.00	0	106.3	58.9	132	09/04/2019
Trichloroethene	2.0		48.9	50.00	0	97.9	74.3	125	09/04/2019
Trichlorofluoromethane	5.0		52.5	50.00	0	104.9	71.5	136	09/04/2019
Vinyl acetate	5.0		49.4	50.00	0	98.9	65.9	136	09/04/2019



Quality Control Results

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Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch	156975	SampType:	LCS	Units	µg/L							
SampID: LCS-AE190904A-1												
Analyses		RL	Qual	Result	Spike	SPK	Ref Val	%REC	Low Limit	High Limit	Date Analyzed	
Vinyl chloride		2.0		50.7	50.00	0	101.5		55.8	135	09/04/2019	
Surr: 1,2-Dichloroethane-d4				49.0	50.00		97.9		79.6	118	09/04/2019	
Surr: 4-Bromofluorobenzene				50.5	50.00		100.9		83.9	115	09/04/2019	
Surr: Dibromofluoromethane				49.5	50.00		99.1		84.9	113	09/04/2019	
Surr: Toluene-d8				50.0	50.00		100.0		86.7	112	09/04/2019	

Quality Control Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 156975	SampType: LCSD	Units µg/L	RPD Limit 40							Date Analyzed		
SampleID: LCSD-AE190904A-1			Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	
1,1,1,2-Tetrachloroethane	2.0		48.9	50.00	0	97.8		48.98	0.12		09/04/2019	
1,1,1-Trichloroethane	2.0		51.6	50.00	0	103.2		51.80	0.37		09/04/2019	
1,1,2,2-Tetrachloroethane	2.0		48.8	50.00	0	97.6		48.96	0.35		09/04/2019	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0		51.0	50.00	0	101.9		51.32	0.70		09/04/2019	
1,1,2-Trichloroethane	0.5		48.7	50.00	0	97.4		48.64	0.12		09/04/2019	
1,1-Dichloro-2-propanone	30.0		123	125.0	0	98.4		125.4	1.87		09/04/2019	
1,1-Dichloroethane	2.0		50.4	50.00	0	100.8		50.97	1.12		09/04/2019	
1,1-Dichloroethene	2.0		51.3	50.00	0	102.6		51.63	0.66		09/04/2019	
1,1-Dichloropropene	2.0		49.7	50.00	0	99.4		49.39	0.63		09/04/2019	
1,2,3-Trichlorobenzene	2.0		50.3	50.00	0	100.5		50.55	0.56		09/04/2019	
1,2,3-Trichloropropane	2.0		48.2	50.00	0	96.5		47.92	0.69		09/04/2019	
1,2,3-Trimethylbenzene	2.0		49.7	50.00	0	99.4		49.90	0.42		09/04/2019	
1,2,4-Trichlorobenzene	2.0		50.1	50.00	0	100.3		50.70	1.13		09/04/2019	
1,2,4-Trimethylbenzene	2.0		48.9	50.00	0	97.8		49.39	1.04		09/04/2019	
1,2-Dibromo-3-chloropropane	5.0		50.7	50.00	0	101.4		50.05	1.25		09/04/2019	
1,2-Dibromoethane	2.0		47.0	50.00	0	94.0		47.59	1.20		09/04/2019	
1,2-Dichlorobenzene	2.0		47.5	50.00	0	95.0		47.46	0.04		09/04/2019	
1,2-Dichloroethane	2.0		46.8	50.00	0	93.7		46.82	0.04		09/04/2019	
1,2-Dichloropropane	2.0		47.1	50.00	0	94.2		47.52	0.91		09/04/2019	
1,3,5-Trimethylbenzene	2.0		49.7	50.00	0	99.4		49.48	0.46		09/04/2019	
1,3-Dichlorobenzene	2.0		47.8	50.00	0	95.5		47.87	0.21		09/04/2019	
1,3-Dichloropropane	2.0		46.2	50.00	0	92.3		46.75	1.29		09/04/2019	
1,4-Dichlorobenzene	2.0		47.2	50.00	0	94.4		47.36	0.30		09/04/2019	
1-Chlorobutane	5.0		51.6	50.00	0	103.2		51.66	0.10		09/04/2019	
2,2-Dichloropropane	2.0		53.3	50.00	0	106.7		54.21	1.64		09/04/2019	
2-Butanone	10.0		116	125.0	0	93.0		117.2	0.80		09/04/2019	
2-Chloroethyl vinyl ether	5.0		47.7	50.00	0	95.4		46.71	2.08		09/04/2019	
2-Chlorotoluene	2.0		49.1	50.00	0	98.2		49.01	0.22		09/04/2019	
2-Hexanone	10.0		115	125.0	0	92.4		116.1	0.55		09/04/2019	
2-Nitropropane	10.0		488	500.0	0	97.5		488.2	0.13		09/04/2019	
4-Chlorotoluene	2.0		48.8	50.00	0	97.5		48.94	0.35		09/04/2019	
4-Methyl-2-pentanone	10.0		117	125.0	0	93.4		116.7	0.13		09/04/2019	
Acetone	10.0		109	125.0	0	87.4		112.7	3.06		09/04/2019	
Acetonitrile	10.0		462	500.0	0	92.4		464.7	0.62		09/04/2019	
Acrolein	20.0		485	500.0	0	97.0		480.3	1.02		09/04/2019	
Acrylonitrile	5.0		48.0	50.00	0	96.0		47.86	0.33		09/04/2019	
Allyl chloride	5.0		50.4	50.00	0	100.9		52.05	3.12		09/04/2019	
Benzene	0.5		46.7	50.00	0	93.4		46.84	0.26		09/04/2019	
Bromobenzene	2.0		48.6	50.00	0	97.1		48.49	0.12		09/04/2019	
Bromochloromethane	2.0		45.9	50.00	0	91.9		46.42	1.06		09/04/2019	
Bromodichloromethane	2.0		49.2	50.00	0	98.3		49.69	1.05		09/04/2019	
Bromoform	2.0		49.3	50.00	0	98.6		49.59	0.61		09/04/2019	
Bromomethane	5.0		56.7	50.00	0	113.4		56.27	0.74		09/04/2019	
Carbon disulfide	2.0		48.0	50.00	0	95.9		48.27	0.64		09/04/2019	
Carbon tetrachloride	2.0		51.4	50.00	0	102.8		51.25	0.29		09/04/2019	
Chlorobenzene	2.0		47.5	50.00	0	95.1		47.71	0.38		09/04/2019	
Chloroethane	2.0		52.1	50.00	0	104.3		51.85	0.56		09/04/2019	

Quality Control Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch	156975	SampType	LCSD	Units	µg/L	RPD Limit 40									Date Analyzed
				Sample ID:	LCSD-AE190904A-1	Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	
Chloroform				2.0		48.7	50.00	0	97.4		48.66		0.10		09/04/2019
Chloromethane				5.0		47.6	50.00	0	95.2		47.44		0.34		09/04/2019
Chloroprene				5.0		50.3	50.00	0	100.6		50.47		0.36		09/04/2019
cis-1,2-Dichloroethene				2.0		48.8	50.00	0	97.5		49.03		0.57		09/04/2019
cis-1,3-Dichloropropene				2.0		48.9	50.00	0	97.8		49.35		0.94		09/04/2019
cis-1,4-Dichloro-2-butene				2.0		51.4	50.00	0	102.7		52.21		1.62		09/04/2019
Cyclohexanone				20.0		440	500.0	0	88.0		436.6		0.83		09/04/2019
Dibromochloromethane				2.0		49.0	50.00	0	98.0		49.59		1.18		09/04/2019
Dibromomethane				2.0		47.0	50.00	0	93.9		46.94		0.04		09/04/2019
Dichlorodifluoromethane				2.0		54.0	50.00	0	108.1		54.59		1.01		09/04/2019
Ethyl acetate				10.0		45.1	50.00	0	90.2		44.50		1.32		09/04/2019
Ethyl ether				5.0		47.5	50.00	0	95.0		47.75		0.52		09/04/2019
Ethyl methacrylate				5.0		48.2	50.00	0	96.4		48.39		0.35		09/04/2019
Ethylbenzene				2.0		48.0	50.00	0	96.1		48.10		0.12		09/04/2019
Hexachlorobutadiene				5.0		54.4	50.00	0	108.7		54.52		0.31		09/04/2019
Hexachloroethane				5.0		54.5	50.00	0	108.9		54.68		0.38		09/04/2019
Iodomethane				5.0		52.0	50.00	0	103.9		52.06		0.17		09/04/2019
Isopropylbenzene				2.0		48.6	50.00	0	97.2		48.82		0.41		09/04/2019
m,p-Xylenes				2.0		96.2	100.0	0	96.2		96.59		0.35		09/04/2019
Methacrylonitrile				5.0		48.0	50.00	0	95.9		47.99		0.06		09/04/2019
Methyl Methacrylate				5.0		47.2	50.00	0	94.3		47.42		0.57		09/04/2019
Methyl tert-butyl ether				2.0		48.3	50.00	0	96.6		48.54		0.54		09/04/2019
Methylacrylate				5.0		49.2	50.00	0	98.5		49.10		0.26		09/04/2019
Methylene chloride				10.0		45.5	50.00	0	91.1		45.44		0.20		09/04/2019
Naphthalene				5.0		47.7	50.00	0	95.4		47.97		0.54		09/04/2019
n-Butyl acetate				2.0		46.4	50.00	0	92.8		46.35		0.13		09/04/2019
n-Butylbenzene				2.0		49.2	50.00	0	98.5		48.98		0.55		09/04/2019
n-Heptane				5.0		54.7	50.00	0	109.3		54.54		0.24		09/04/2019
n-Hexane				5.0		54.4	50.00	0	108.8		54.60		0.35		09/04/2019
Nitrobenzene				50.0		473	500.0	0	94.6		468.0		1.09		09/04/2019
n-Propylbenzene				2.0		49.9	50.00	0	99.8		49.97		0.10		09/04/2019
o-Xylene				2.0		47.7	50.00	0	95.4		48.02		0.65		09/04/2019
Pentachloroethane				5.0		51.9	50.00	0	103.8		52.18		0.52		09/04/2019
p-Isopropyltoluene				2.0		50.0	50.00	0	100.0		49.99		0.06		09/04/2019
Propionitrile				10.0		477	500.0	0	95.4		474.2		0.56		09/04/2019
sec-Butylbenzene				2.0		50.4	50.00	0	100.7		50.43		0.12		09/04/2019
Styrene				2.0		48.3	50.00	0	96.6		48.62		0.62		09/04/2019
tert-Butylbenzene				2.0		50.3	50.00	0	100.6		50.16		0.30		09/04/2019
Tetrachloroethene				0.5		48.6	50.00	0	97.1		48.33		0.45		09/04/2019
Tetrahydrofuran				5.0		42.3	50.00	0	84.6		43.11		1.92		09/04/2019
Toluene				2.0		47.3	50.00	0	94.7		47.61		0.57		09/04/2019
trans-1,2-Dichloroethene				2.0		52.3	50.00	0	104.6		52.16		0.29		09/04/2019
trans-1,3-Dichloropropene				2.0		48.7	50.00	0	97.4		48.97		0.57		09/04/2019
trans-1,4-Dichloro-2-butene				2.0		52.9	50.00	0	105.9		53.13		0.38		09/04/2019
Trichloroethene				2.0		48.8	50.00	0	97.5		48.93		0.33		09/04/2019
Trichlorofluoromethane				5.0		52.9	50.00	0	105.8		52.47		0.82		09/04/2019
Vinyl acetate				5.0		49.5	50.00	0	99.0		49.44		0.16		09/04/2019

Quality Control Results

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch	156975	SampType	LCSD	Units	µg/L	RPD Limit 40				
										Date Analyzed
SamplID: LCSD-AE190904A-1										
Analyses		RL	Qual		Result	Spike	SPK	Ref Val	%REC	RPD Ref Val %RPD
Vinyl chloride		2.0			50.7	50.00	0	101.4		50.73 0.06
Surr: 1,2-Dichloroethane-d4					48.7	50.00		97.4		09/04/2019
Surr: 4-Bromofluorobenzene					50.4	50.00		100.8		09/04/2019
Surr: Dibromofluoromethane					49.9	50.00		99.8		09/04/2019
Surr: Toluene-d8					49.7	50.00		99.4		09/04/2019

Batch 156975 SampType: MS Units µg/L

Batch	156975	SampType	MS	Units	µg/L	Date Analyzed				
										Date Analyzed
SamplID: 19082090-004GMS										
Analyses		RL	Qual		Result	Spike	SPK	Ref Val	%REC	Low Limit High Limit
1,1-Dichloroethene		2.0			53.8	50.00	0	107.5		35.7 136
Benzene		0.5			49.3	50.00	0.1000	98.4		62.5 121
Chlorobenzene		2.0			49.0	50.00	0	97.9		78.6 114
Ethylbenzene		2.0			51.2	50.00	0	102.4		74.4 130
m,p-Xylenes		2.0			50.0	50.00	0	100.1		70.5 126
o-Xylene		2.0			49.4	50.00	0	98.8		71.2 124
Toluene		2.0			54.5	50.00	0.2500	108.6		69.5 118
Trichloroethene		2.0			52.5	50.00	0	104.9		69.4 117
Surr: 1,2-Dichloroethane-d4					50.7	50.00		101.4		79.6 118
Surr: 4-Bromofluorobenzene					49.5	50.00		98.9		83.9 115
Surr: Dibromofluoromethane					49.1	50.00		98.2		84.9 113
Surr: Toluene-d8					49.8	50.00		99.6		86.7 112

Batch 156975 SampType: MSD Units µg/L

Batch	156975	SampType	MSD	Units	µg/L	RPD Limit 20				
										Date Analyzed
SamplID: 19082090-004GMSD										
Analyses		RL	Qual		Result	Spike	SPK	Ref Val	%REC	RPD Ref Val %RPD
1,1-Dichloroethene		2.0			45.7	50.00	0	91.5		53.77 16.14
Benzene		0.5			43.3	50.00	0.1000	86.3		49.29 13.03
Chlorobenzene		2.0			43.6	50.00	0	87.2		48.97 11.56
Ethylbenzene		2.0			44.9	50.00	0	89.8		51.22 13.19
m,p-Xylenes		2.0			44.1	50.00	0	88.3		50.03 12.51
o-Xylene		2.0			44.4	50.00	0	88.7		49.39 10.75
Toluene		2.0			48.4	50.00	0.2500	96.3		54.54 11.91
Trichloroethene		2.0			45.2	50.00	0	90.4		52.47 14.84
Surr: 1,2-Dichloroethane-d4					50.2	50.00		100.5		09/04/2019
Surr: 4-Bromofluorobenzene					49.8	50.00		99.6		09/04/2019
Surr: Dibromofluoromethane					48.8	50.00		97.6		09/04/2019
Surr: Toluene-d8					50.4	50.00		100.8		09/04/2019

Receiving Check List

<http://www.teklabinc.com/>

Client: Geotechnology, Inc.

Work Order: 19082090

Client Project: Hayford Bridge J006295.07

Report Date: 19-Sep-2019

Carrier: Jordan Evans

Received By: AH

Completed by:

On:

30-Aug-2019


Amber M. Dilallo

Reviewed by:

On:

30-Aug-2019



Elizabeth A. Hurley

Pages to follow: Chain of custody

1

Extra pages included

0

	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>	Temp °C <input type="checkbox"/>	4.0 <input type="checkbox"/>
Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Type of thermal preservation?	None <input type="checkbox"/>	Ice <input checked="" type="checkbox"/>		Blue Ice <input type="checkbox"/>	Dry Ice <input type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
All samples received within holding time?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Reported field parameters measured:	Field <input type="checkbox"/>	Lab <input checked="" type="checkbox"/>	NA <input type="checkbox"/>		

Sample analyses to be measured in the field and/or within 15 minutes of collection were analyzed in the lab as soon as practicable. These analyses include Chlorine (demand, free and/or residual), Carbon Dioxide, Dissolved Oxygen, Ferrous Iron, pH, and Sulfite.

Container/Temp Blank temperature in compliance?

Yes

No

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water – at least one vial per sample has zero headspace?

Yes

No

No VOA vials

Water - TOX containers have zero headspace?

Yes

No

No TOX containers

Water - pH acceptable upon receipt?

Yes

No

NA

NPDES/CWA TCN interferences checked/treated in the field?

Yes

No

NA

Any No responses must be detailed below or on the COC.

Headspace was present in the MW-C1 volatile vials. Kenny Hemmen was notified of this error via work order summary. - KT/adilallo - 8/30/2019 5:03:07 PM

Samples were filtered and preserved with Sulfuric Acid (69969) for the dissolved parameters upon arrival at the laboratory. - adilallo - 8/30/2019 5:03:43 PM

Samples were received with insufficient amount of time to meet hold time requirements for 1,4-Dioxane prep. Kenny Hemmen was notified of this error via work order summary. - ehrury - 8/30/2019 5:45:40 PM

CHAIN OF CUSTODY pg. 1 of 1 Work order # 10082010

TEKLAB, INC. 5445 Horseshoe Lake Road - Collinsville, IL 62234 - Phone: (618) 344-1004 - Fax: (618) 344-1005

Client:	Geotechnology, Inc.		
Address:	11816 Lackland Road		
City / State / Zip	St. Louis, MO 63146		
Contact:	Kenny Hemmen	Phone:	(314) 997-7440
E-Mail:	khemmen@geotechnology.com		
Phone: (314) 997-2067			
Are these samples known to be involved in litigation? If yes, a surcharge will apply <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
Are these samples known to be hazardous? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
Are there any required reporting limits to be met on the requested analysis? If yes, please provide limits in the comment section. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
Project Name/Number Hayford Bridge J006295.07		Sample Collector's Name Wayne Holtzmann	
Results Requested <input checked="" type="checkbox"/> Standard <input type="checkbox"/> 1-2 Day (100% Surcharge) <input type="checkbox"/> Other <input type="checkbox"/> 3 Day (50% Surcharge)		Billing Instructions J006295-U.OZ	
Lab Use Only		Sample Identification	
		Date/Time Sampled	
19082090 001		MW-C10 8-26-19 13:35	
002		MW-C11 8-26-19 15:10	
003		MW-C2 8-27-19 12:27	
004		MW-C18 MW-C1 8-28-19 9:20	
005		MW-C19 MW-C8 8-28-19 10:50	
006		MW-C5 8-28-19 12:55	
007		MW-C6 8-28-19 13:40	
008		MW-C1 8-28-19 15:35	
Relinquished By Wayne Holtzmann		Date/Time 8-28-19 4:30pm	
		Received By	
		Date/Time	
		8-30-19 7:41am	
		8/30/19 1550	

The individual signing this agreement on behalf of the client, acknowledges that he/she has read and understands the terms and conditions of this agreement, and that he/she has the authority to sign on behalf of the client. See www.teklabinc.com for terms and conditions.

BottleOrder: 52768



130 ha



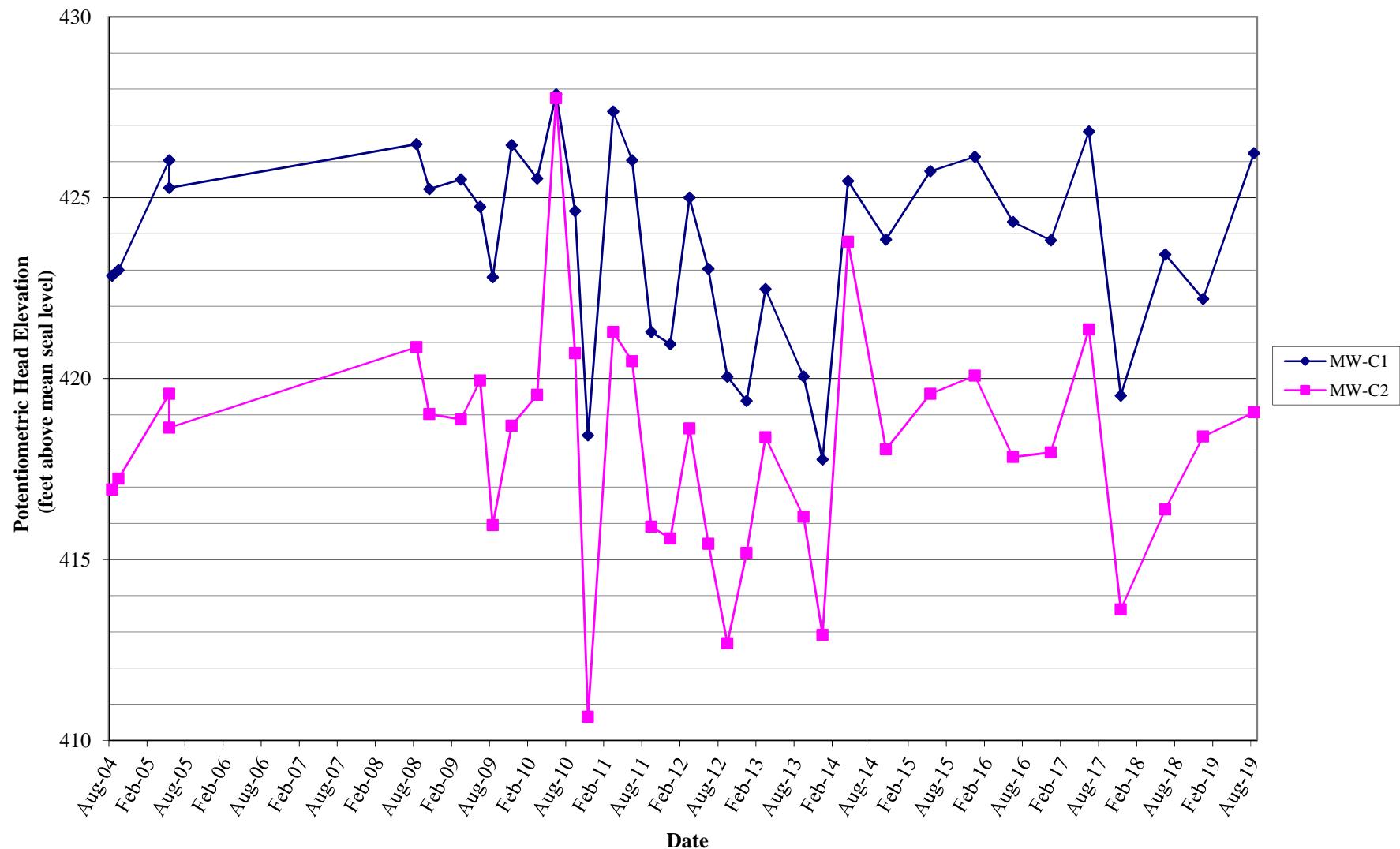
APPENDIX D

GROUNDWATER HYDROGRAPHS

**OPERABLE UNIT 3
HAYFORD BRIDGE ROAD GROUNDWATER SITE**

J006295.11

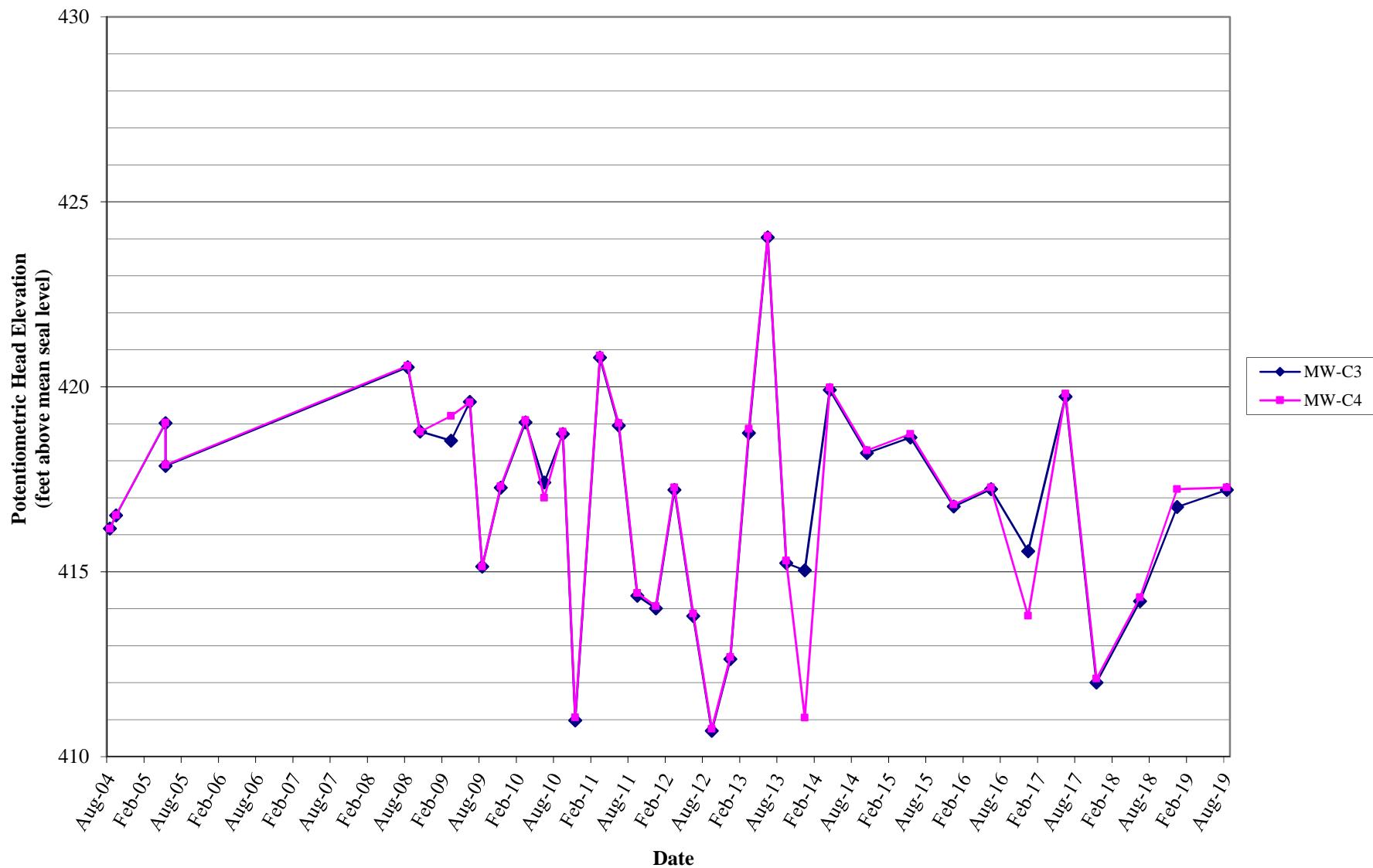
**GROUNDWATER HYDROGRAPH
MONITORING WELLS MW-C1 AND MW-C2**



**OPERABLE UNIT 3
HAYFORD BRIDGE ROAD GROUNDWATER SITE**

J006295.11

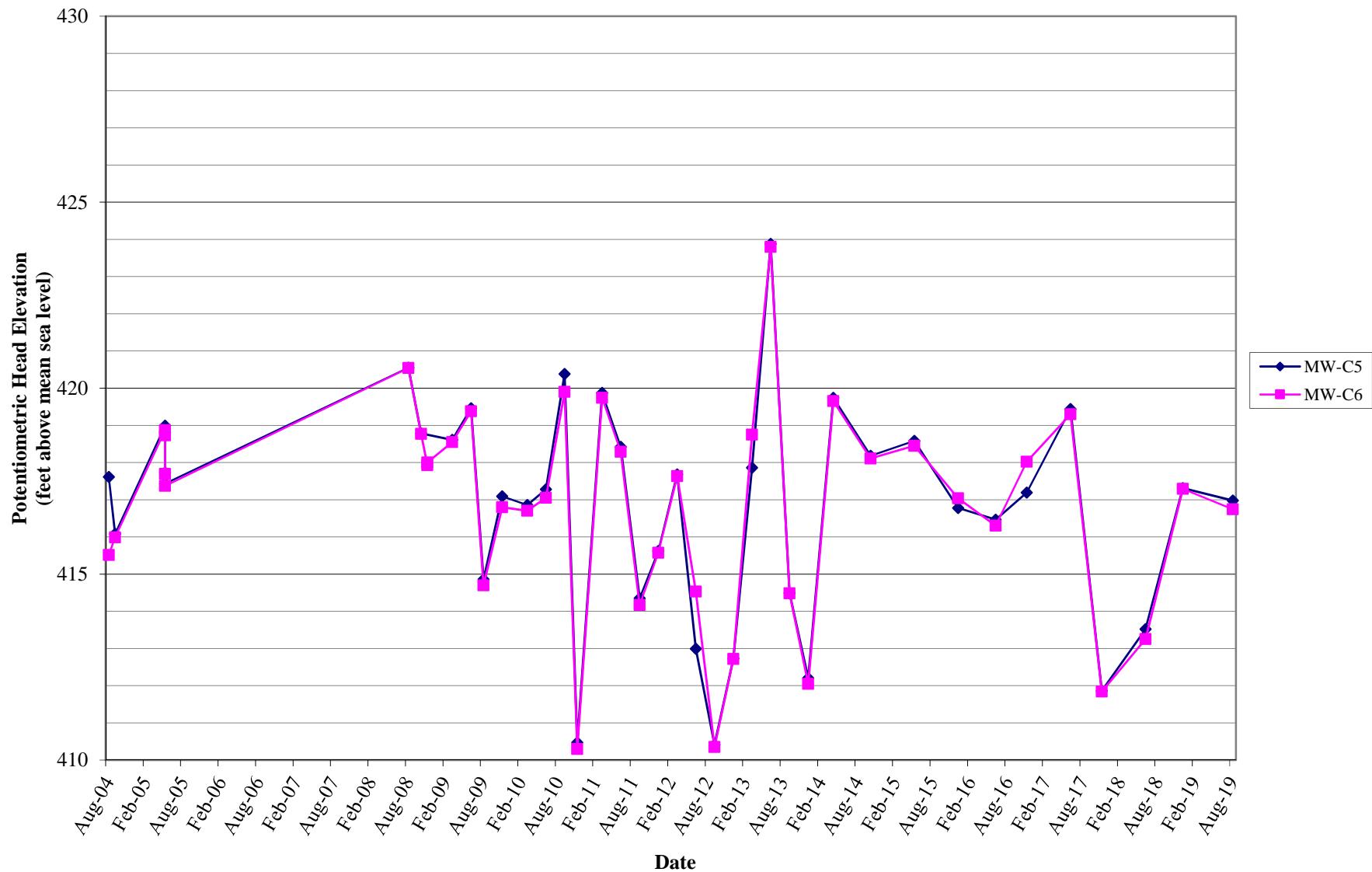
**GROUNDWATER HYDROGRAPH
MONITORING WELLS MW-C3 AND MW-C4**



**OPERABLE UNIT 3
HAYFORD BRIDGE ROAD GROUNDWATER SITE**

J006295.11

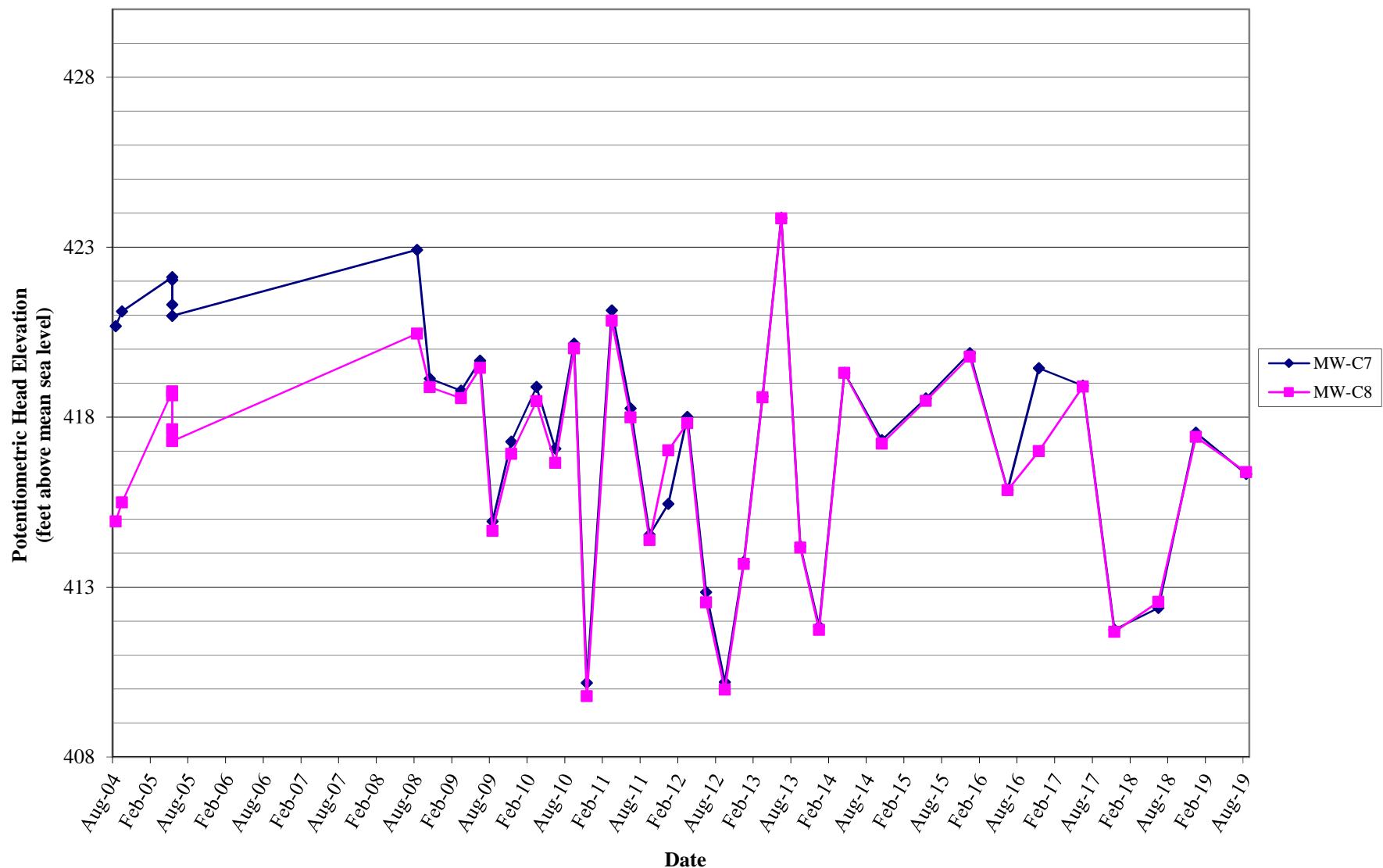
**GROUNDWATER HYDROGRAPH
MONITORING WELLS MW-C5 AND MW-C6**



**OPERABLE UNIT 3
HAYFORD BRIDGE ROAD GROUNDWATER SITE**

J006295.11

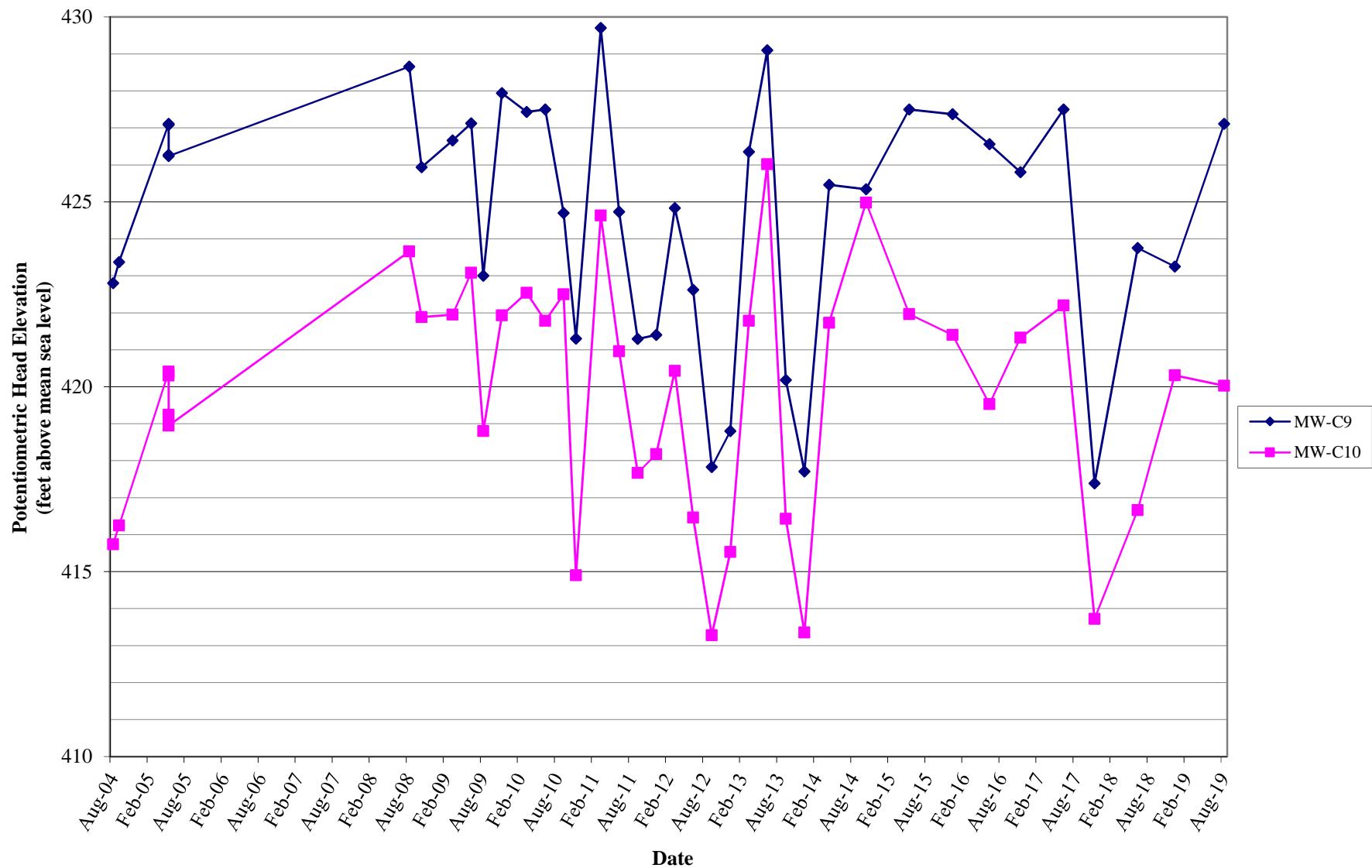
**GROUNDWATER HYDROGRAPH
MONITORING WELLS MW-C7 AND MW-C8**



OPERABLE UNIT 3
HAYFORD BRIDGE ROAD GROUNDWATER SITE

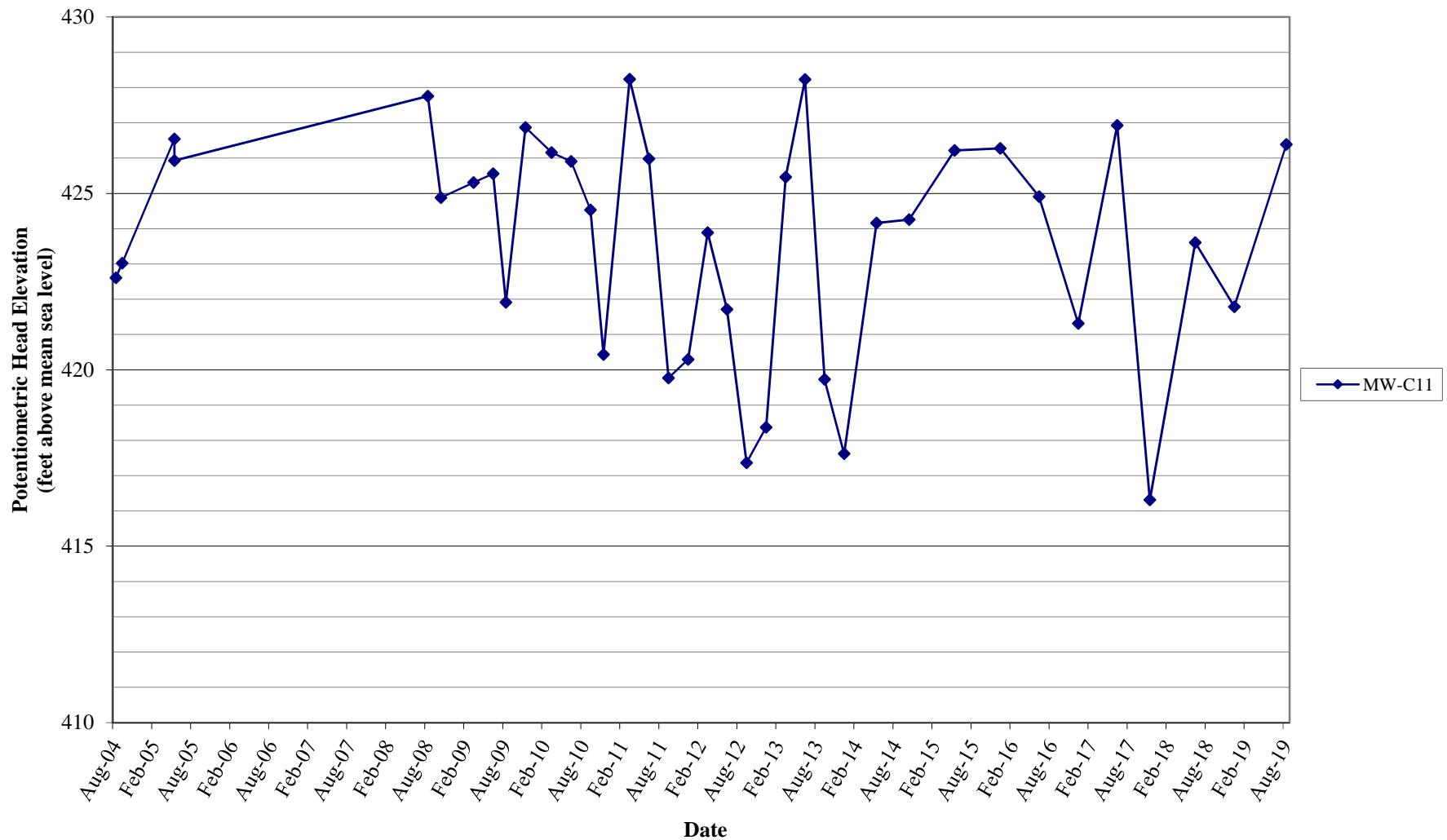
J006295.11

GROUNDWATER HYDROGRAPH
MONITORING WELLS MW-C9 AND MW-C10



OPERABLE UNIT 3
HAYFORD BRIDGE ROAD GROUNDWATER SITE

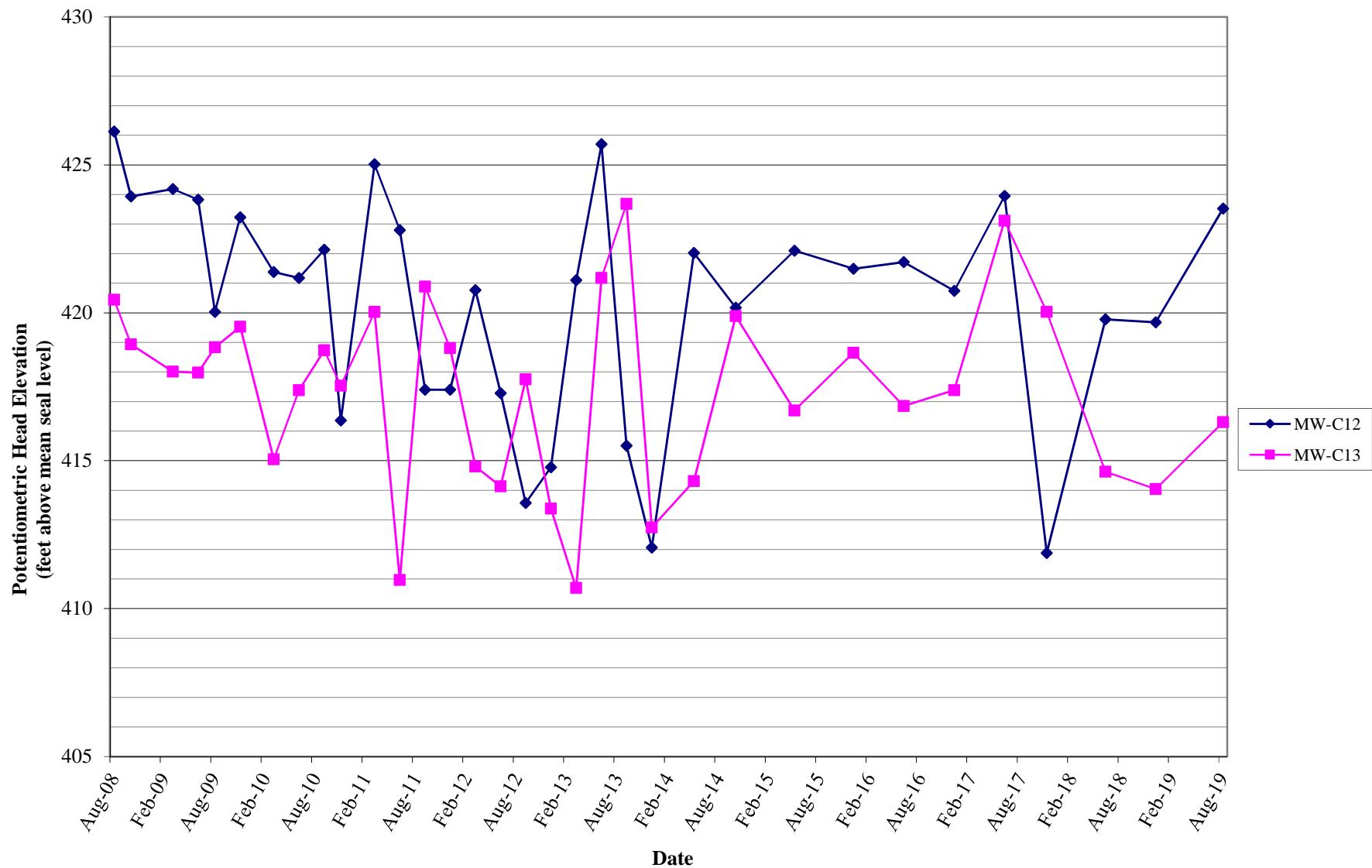
GROUNDWATER HYDROGRAPH
MONITORING WELL MW-C11



OPERABLE UNIT 3
HAYFORD BRIDGE ROAD GROUNDWATER SITE

J006295.11

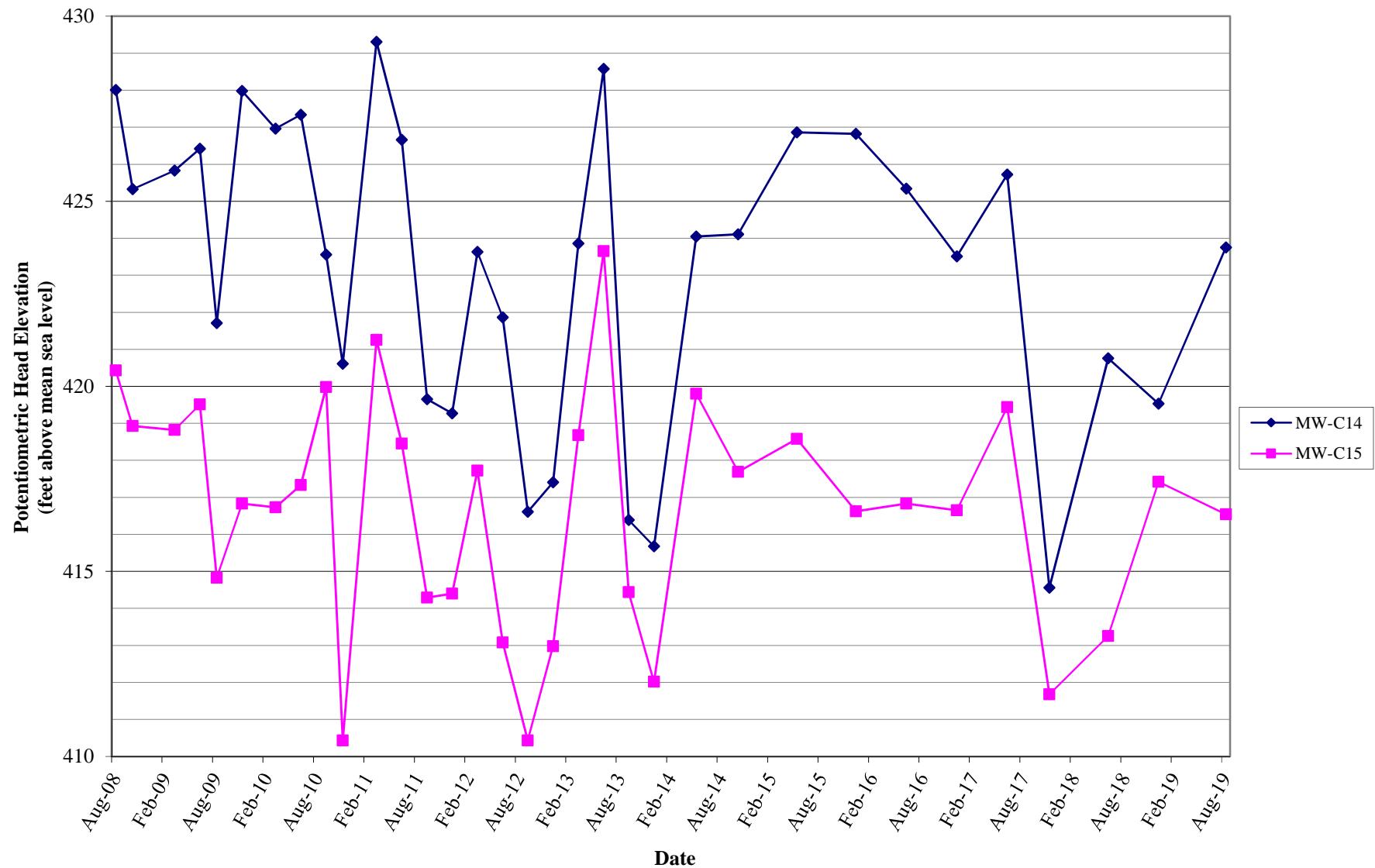
GROUNDWATER HYDROGRAPH
MONITORING WELLS MW-C12 AND MW-C13



OPERABLE UNIT 3
HAYFORD BRIDGE ROAD GROUNDWATER SITE

J006295.11

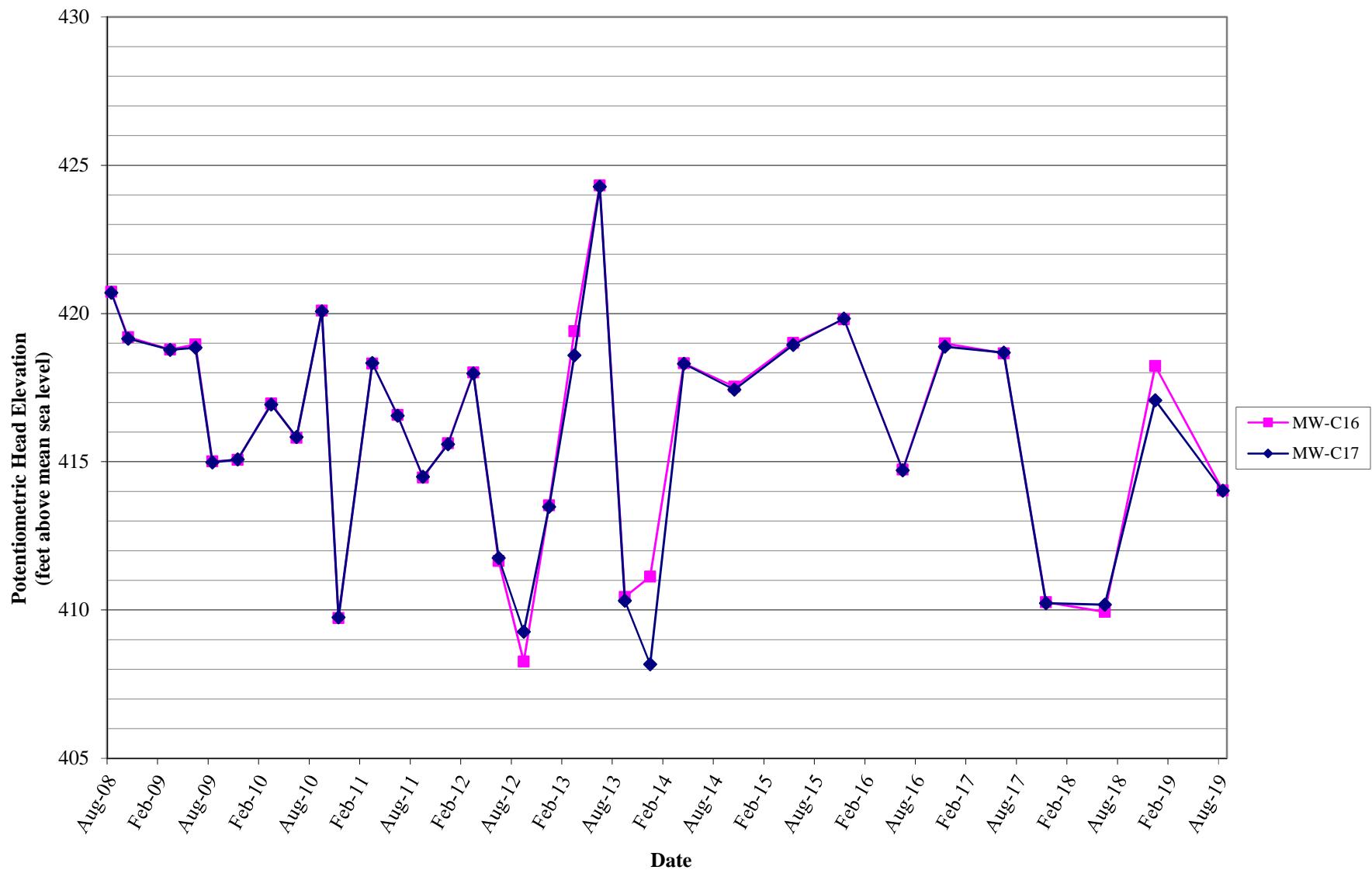
GROUNDWATER HYDROGRAPHS
MONITORING WELLS MW-C14 AND MW-C15



**OPERABLE UNIT 3
HAYFORD BRIDGE ROAD GROUNDWATER SITE**

J006295.11

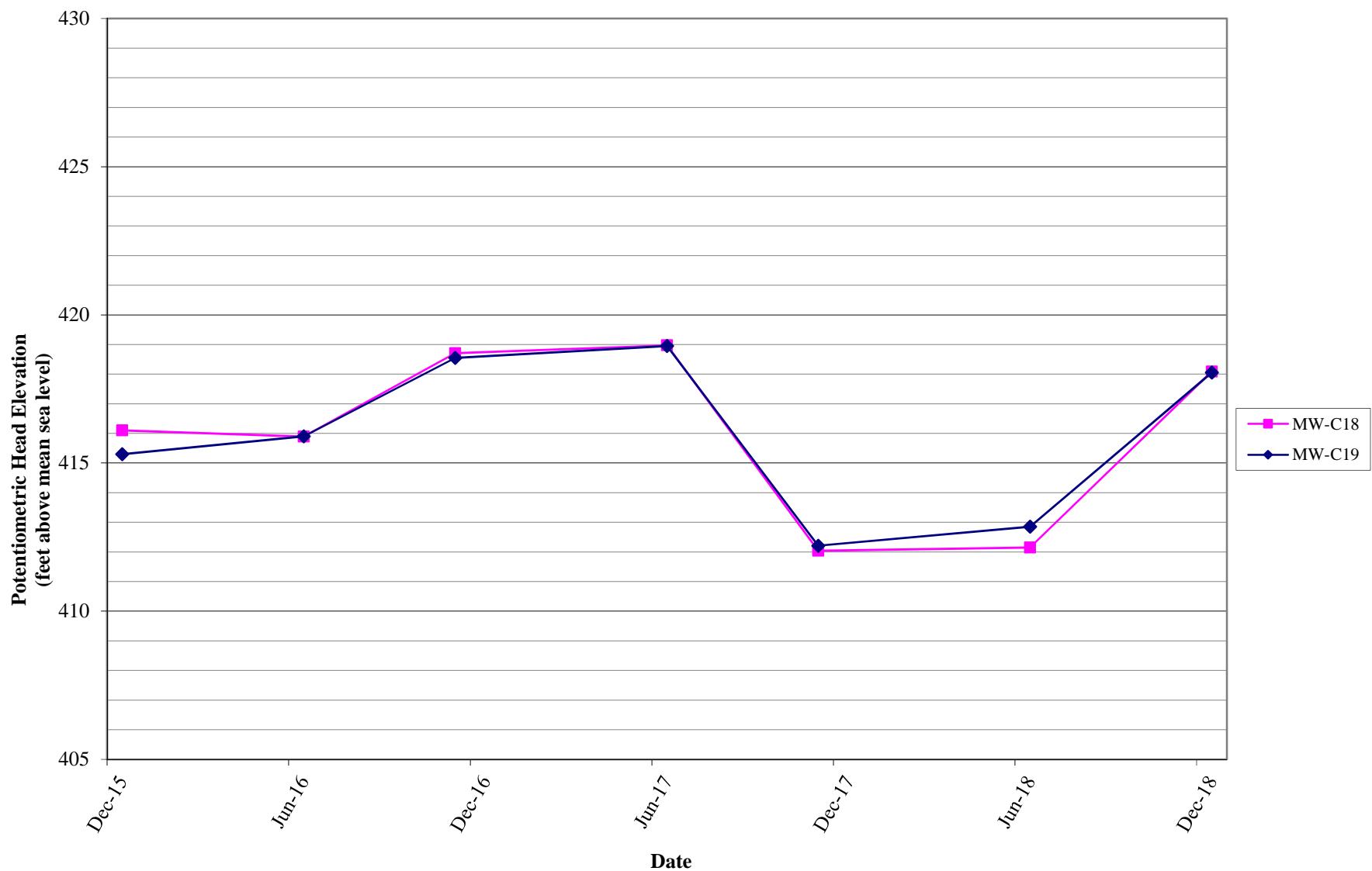
**GROUNDWATER HYDROGRAPH
MONITORING WELL MW-C16 AND MW-C17**



**OPERABLE UNIT 3
HAYFORD BRIDGE ROAD GROUNDWATER SITE**

J006295.11

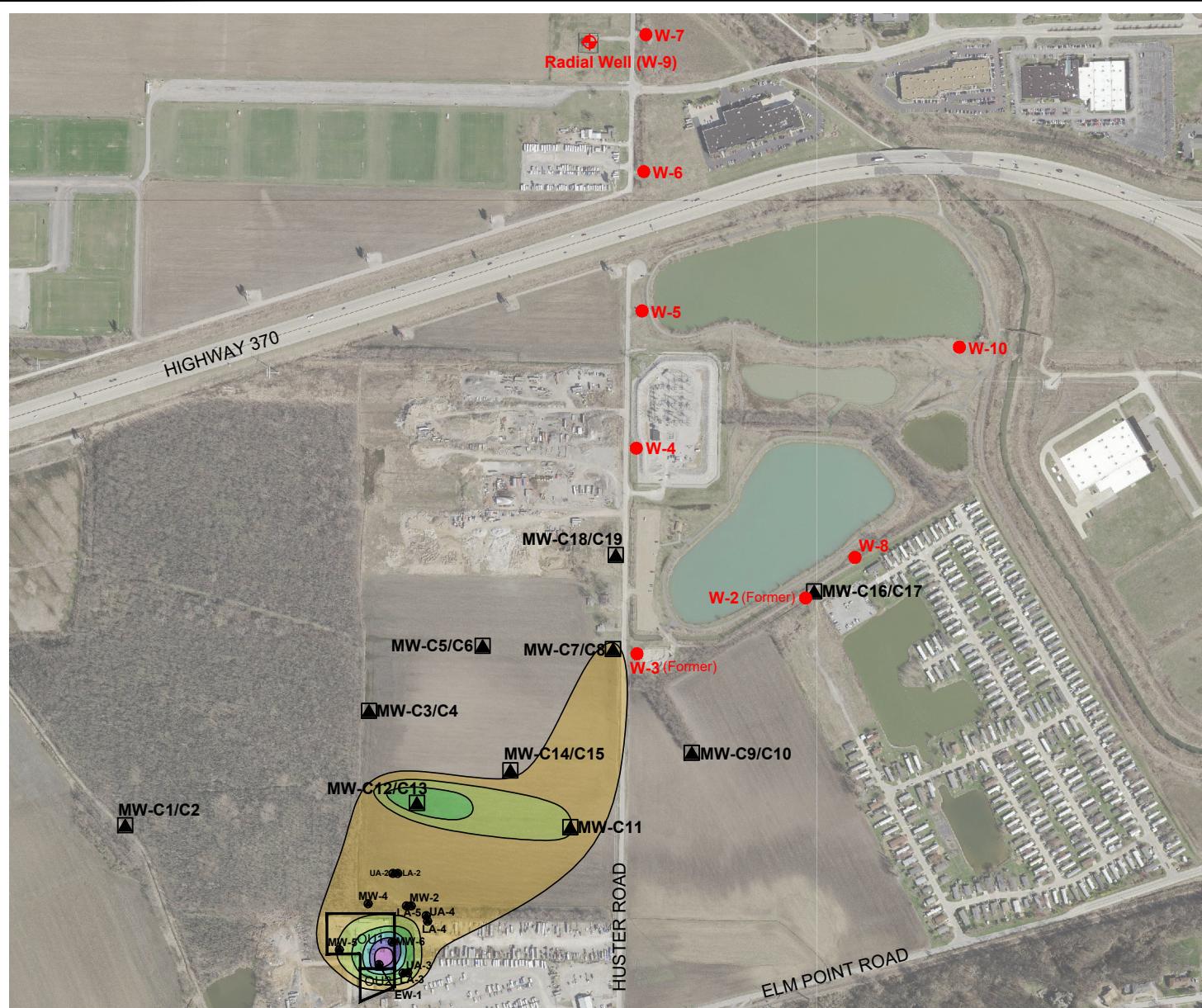
**GROUNDWATER HYDROGRAPH
MONITORING WELL MW-C18 AND MW-C19**



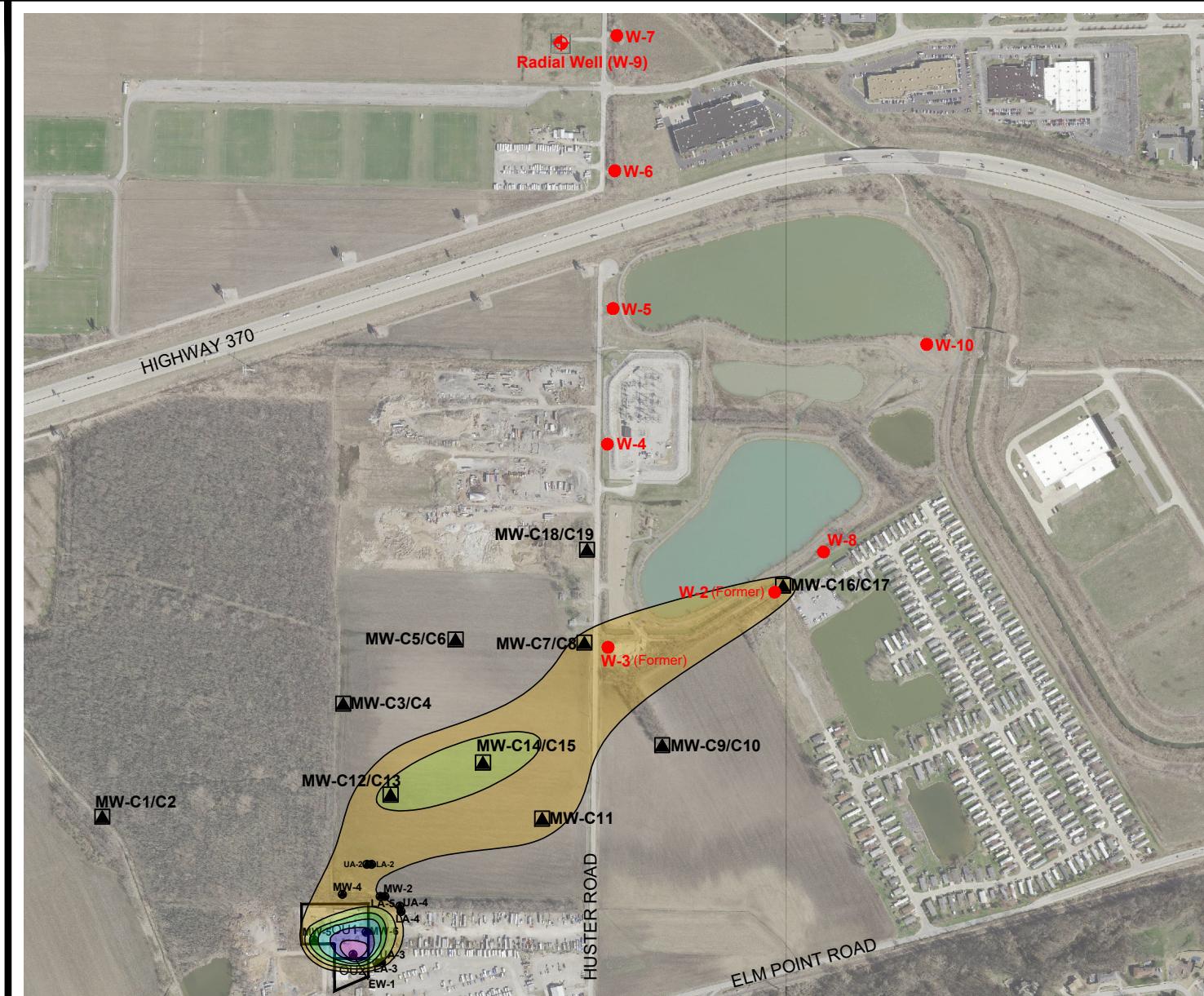


APPENDIX E

GROUNDWATER CONCENTRATION MAPS



CIS-1,2-DCE CONCENTRATION - SECOND QUARTER 2014



CIS-1,2-DCE CONCENTRATION - THIRD QUARTER 2019

NOTES

1. Locations shown are approximate.
2. Monitoring wells located outside concentration isopleths were non-detect for cis-1,2-dichloroethene (cis-1,2-DCE).
3. Concentrations at OU1 wells were reported for total DCE. Contours assume total DCE concentrations are approximately equal to cis-1,2-DCE concentrations.

LEGEND

- Well of Elm Point Well Field
- + Radial Well - Elm Point Well Field
- □ OU1/OU3 Monitoring Well

cis-1,2-DCE Concentration - MCL = 70 ppb



0 400 800 1,600
SCALE IN FEET

Drawn By: WAH	Ck'd By: JYG	App'vd By: KJH
Date: 9-26-19	Date: 10-22-19	Date: 10-22-19



Operable Unit 3
Hayford Bridge Road Groundwater Site
St. Charles, Missouri

CIS-1,2-DCE CONCENTRATION
2Q14 / 3Q19

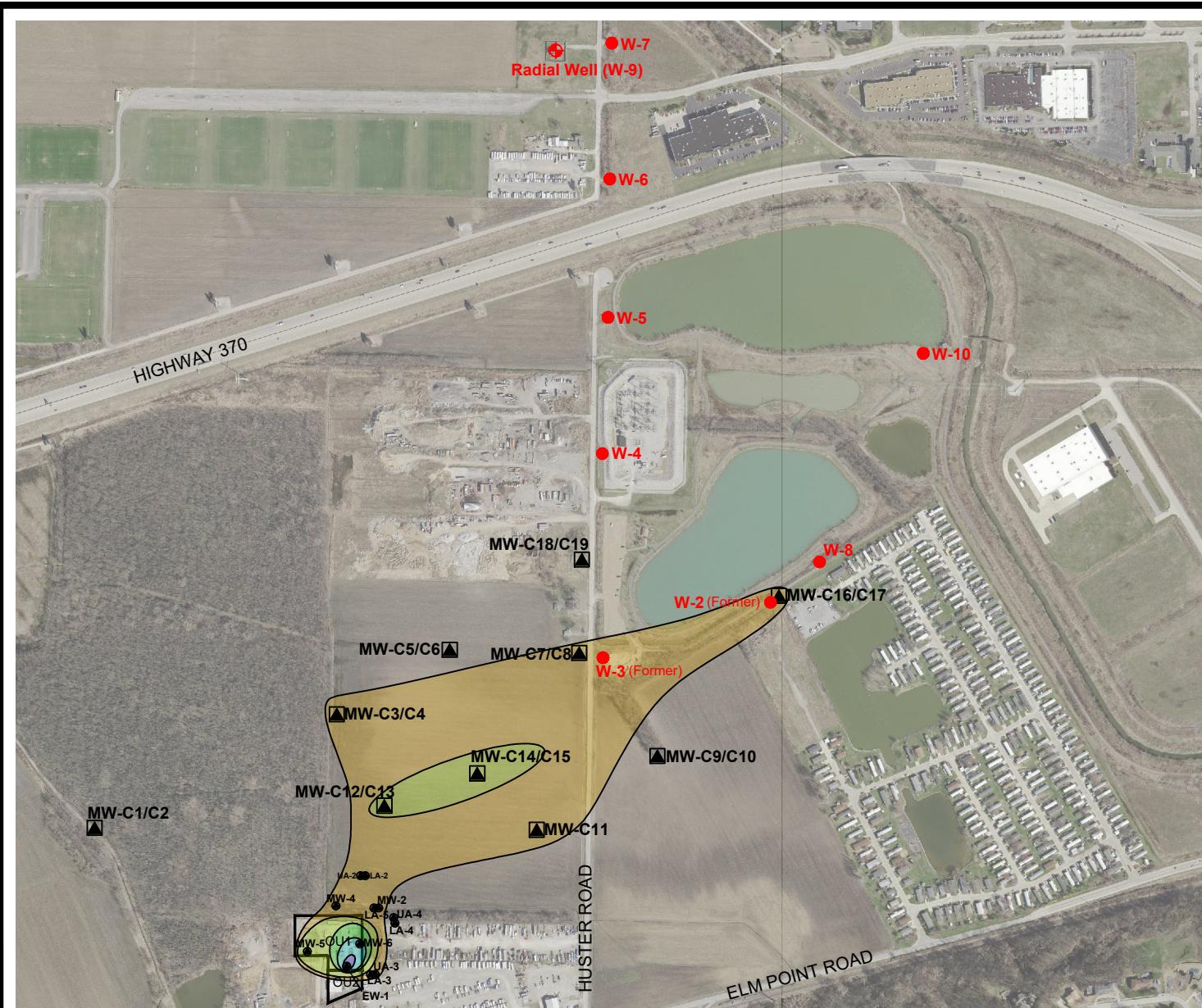
Project Number
J006295.11

PLATE





VINYL CHLORIDE CONCENTRATION - SECOND QUARTER 2014



VINYL CHLORIDE CONCENTRATION - THIRD QUARTER 2019

NOTES

1. Locations shown are approximate.
2. Monitoring wells located outside concentration isopleths were non-detect for vinyl chloride (VC).
3. OU1 data for 2019 concentration map is from the most recent sampling event.

LEGEND

- Well of Elm Point Well Field
- ◆ Radial Well - Elm Point Well Field
- □ OU1/OU3 Monitoring Well

Vinyl Chloride Concentration - MCL = 2 ppb



0 400 800 1,600
SCALE IN FEET

Drawn By: WAH	Ck'd By: JYG	App'vd By: KJH
Date: 9-26-19	Date: 10-22-19	Date: 10-22-19



Operable Unit 3
Hayford Bridge Road Groundwater Site
St. Charles, Missouri

VINYL CHLORIDE CONCENTRATION
2Q14 / 3Q19

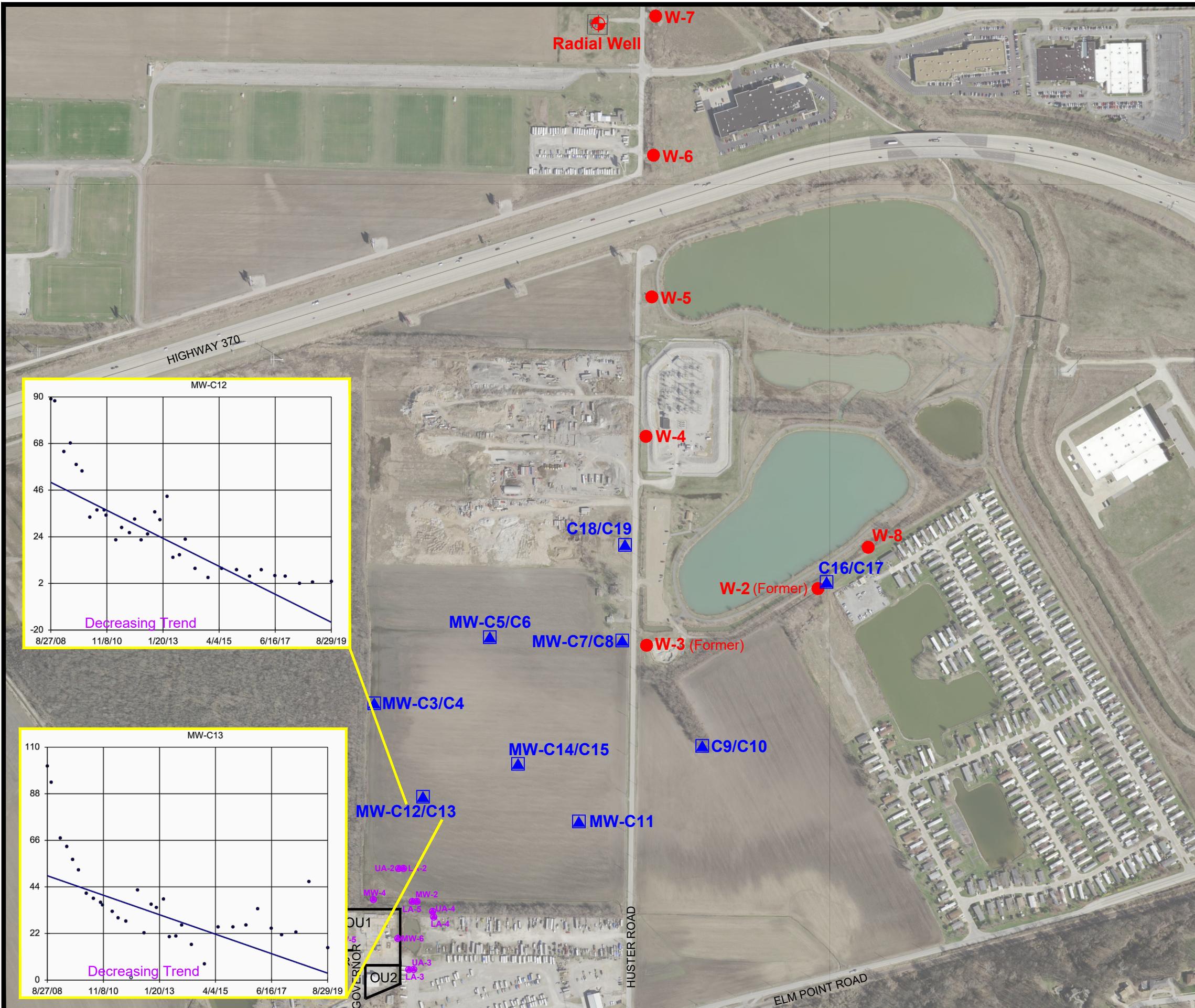
Project Number
J006295.11

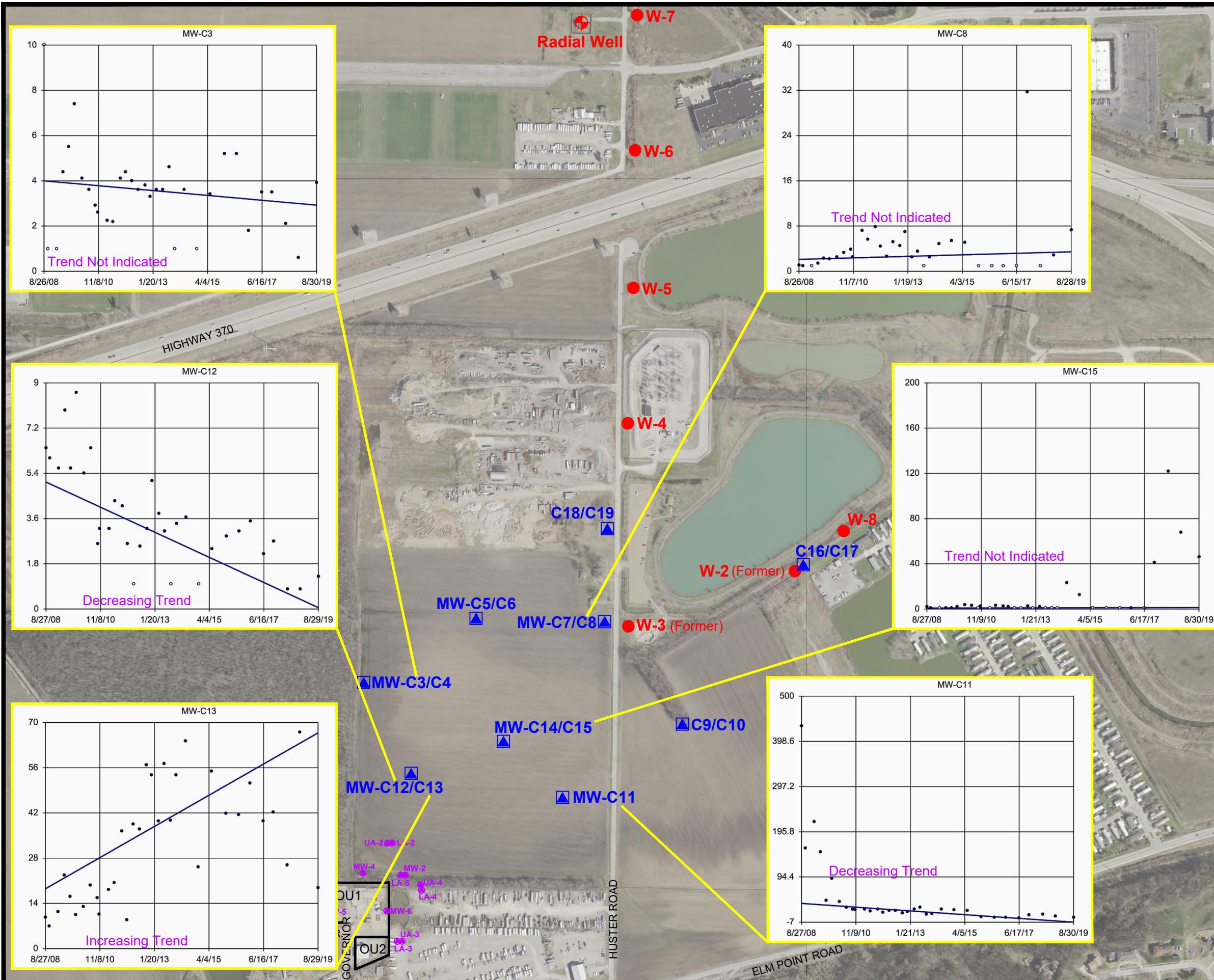
PLATE



APPENDIX F

TREND ANALYSIS DATA



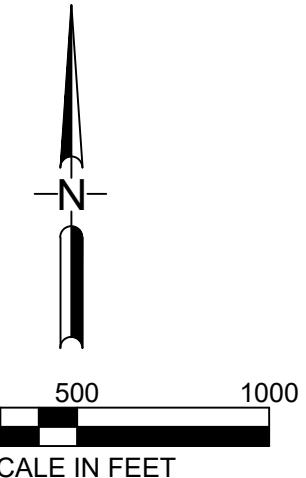


NOTES

1. Data shown for monitoring well exhibiting greater than 50% detection during monitoring period.
2. Statistical trend evaluation performed using Mann-Kendall method at 95% confidence level.

LEGEND:

- Well of Elm Point Well Field
- Radial Well - Elm Point Well Field
- ▲ OU3 Monitoring Well Location (Existing)
- OU1 Monitoring Well Location (Existing)

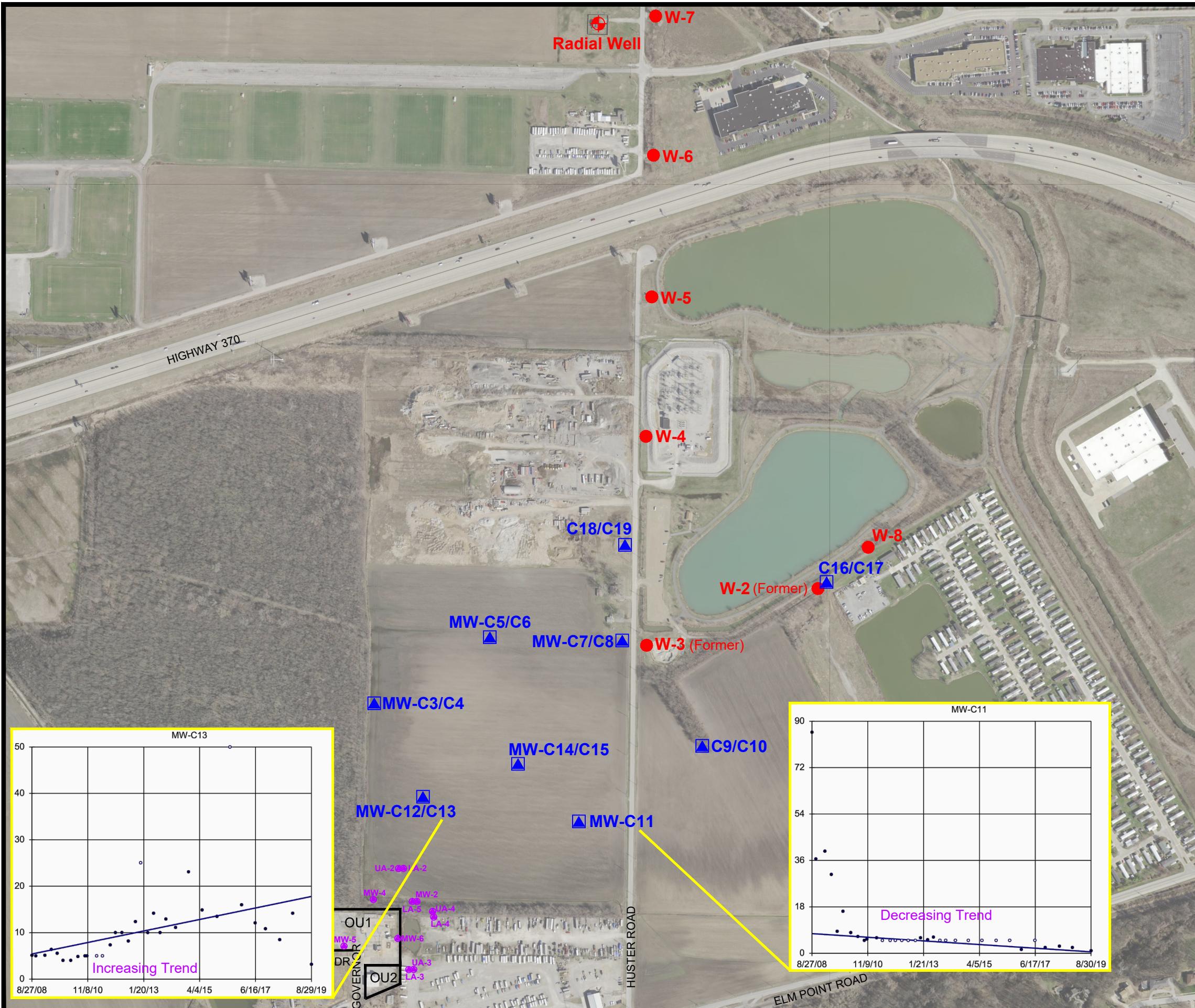


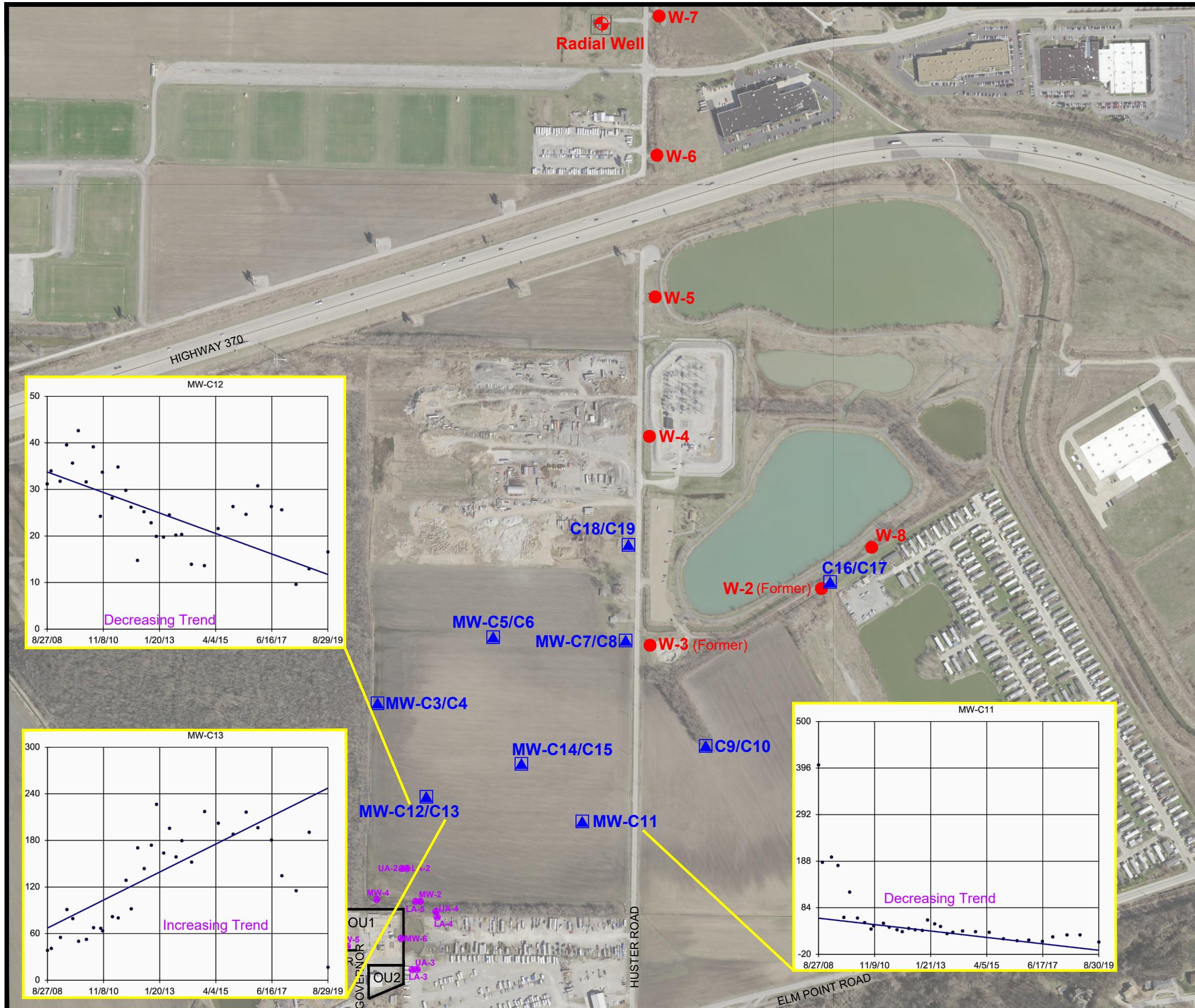
Drawn By: WAH Ck'd By: JYG App'vd By: KJH
Date: 9-30-19 Date: 10-22-19 Date: 10-22-19



Operable Unit 3
Hayford Bridge Road Groundwater Site
St. Charles, Missouri

VINYL CHLORIDE
CONCENTRATION TRENDS
Project Number J006295.11 PLATE

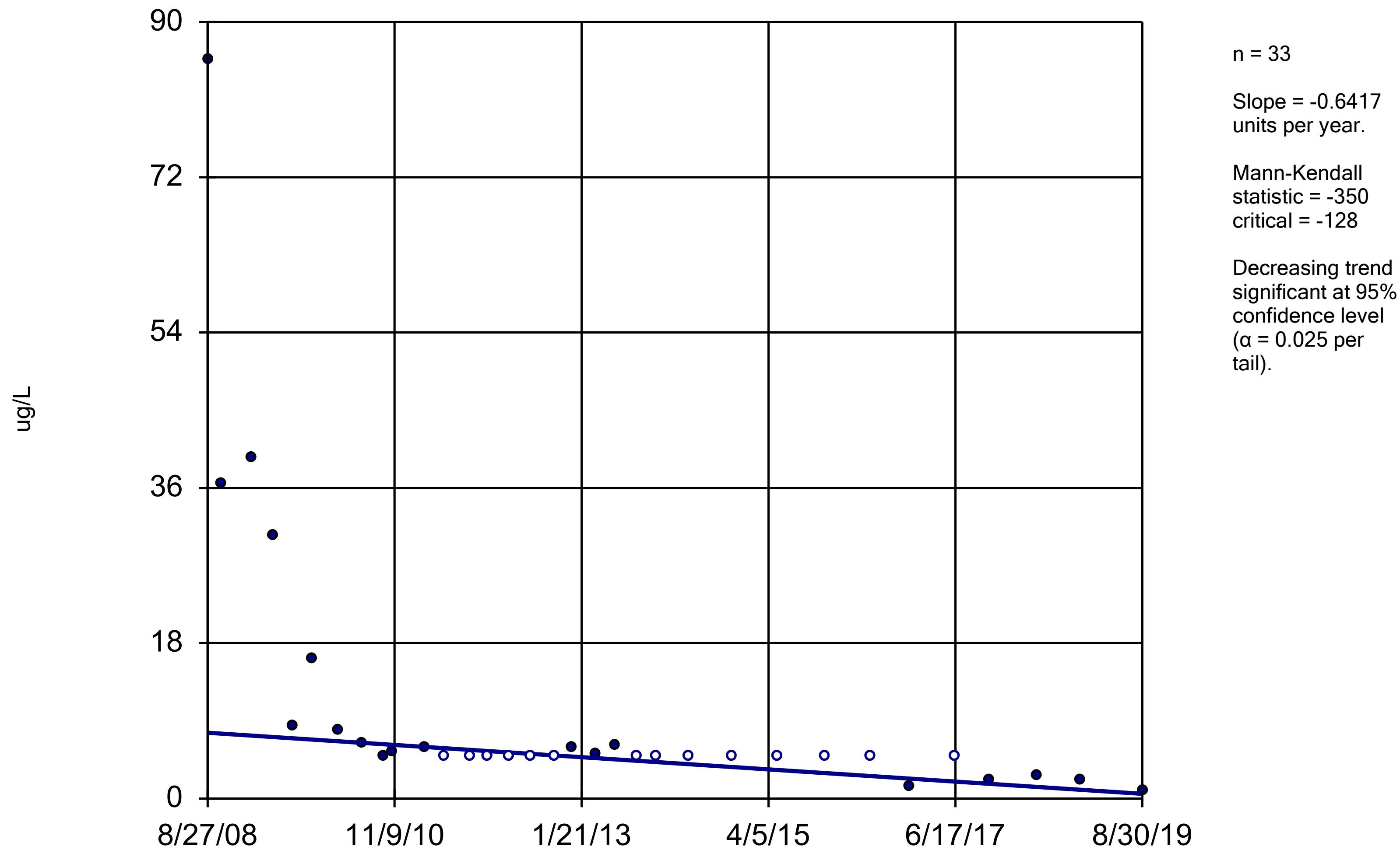




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Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-C11

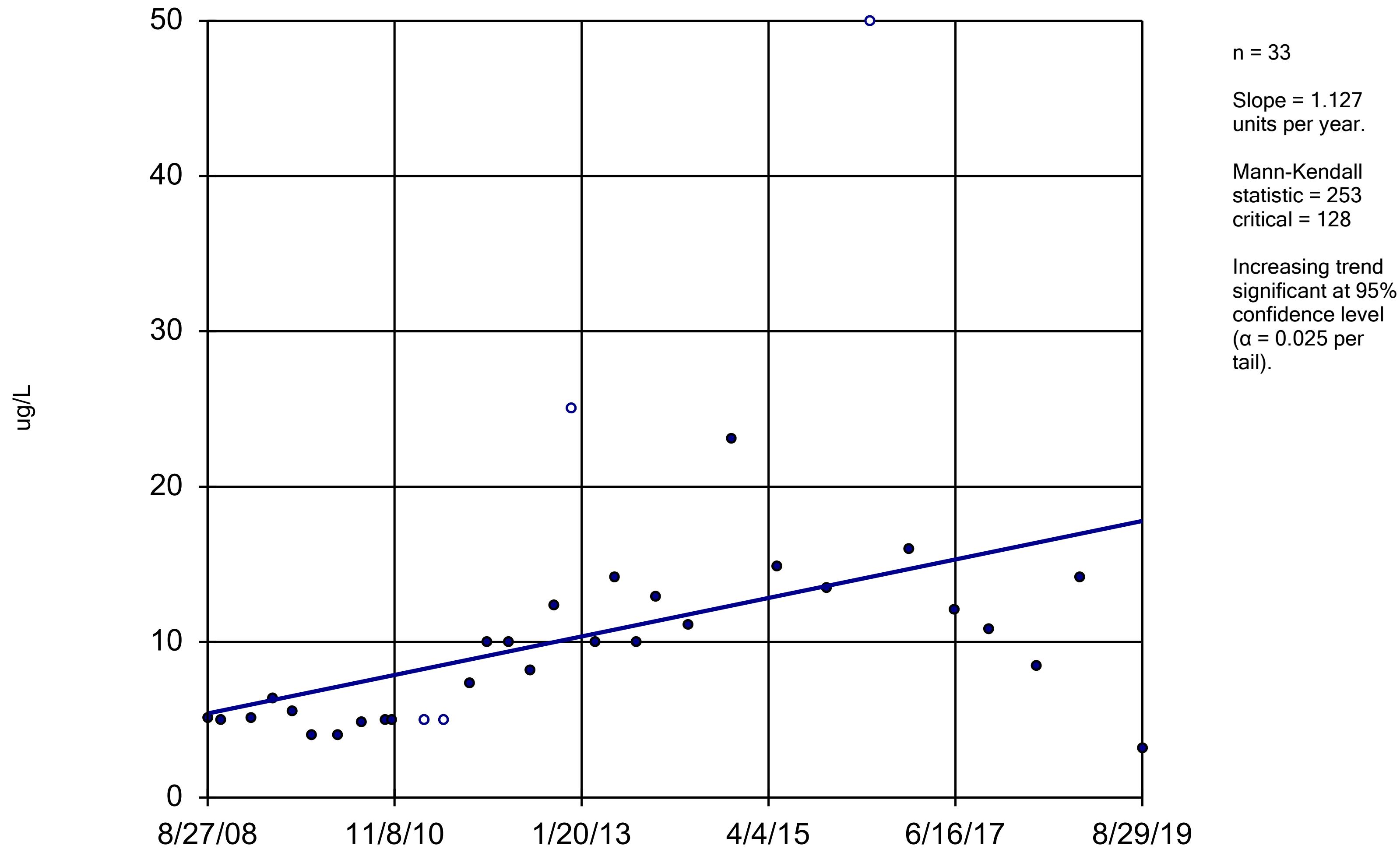


Constituent: 11-Dichloroethane Analysis Run 9/24/2019 1:22 PM View: VOC Trend Plots

OU3 HBR Client: Geotechnology Data: OU3 Master Data File

Sen's Slope Estimator

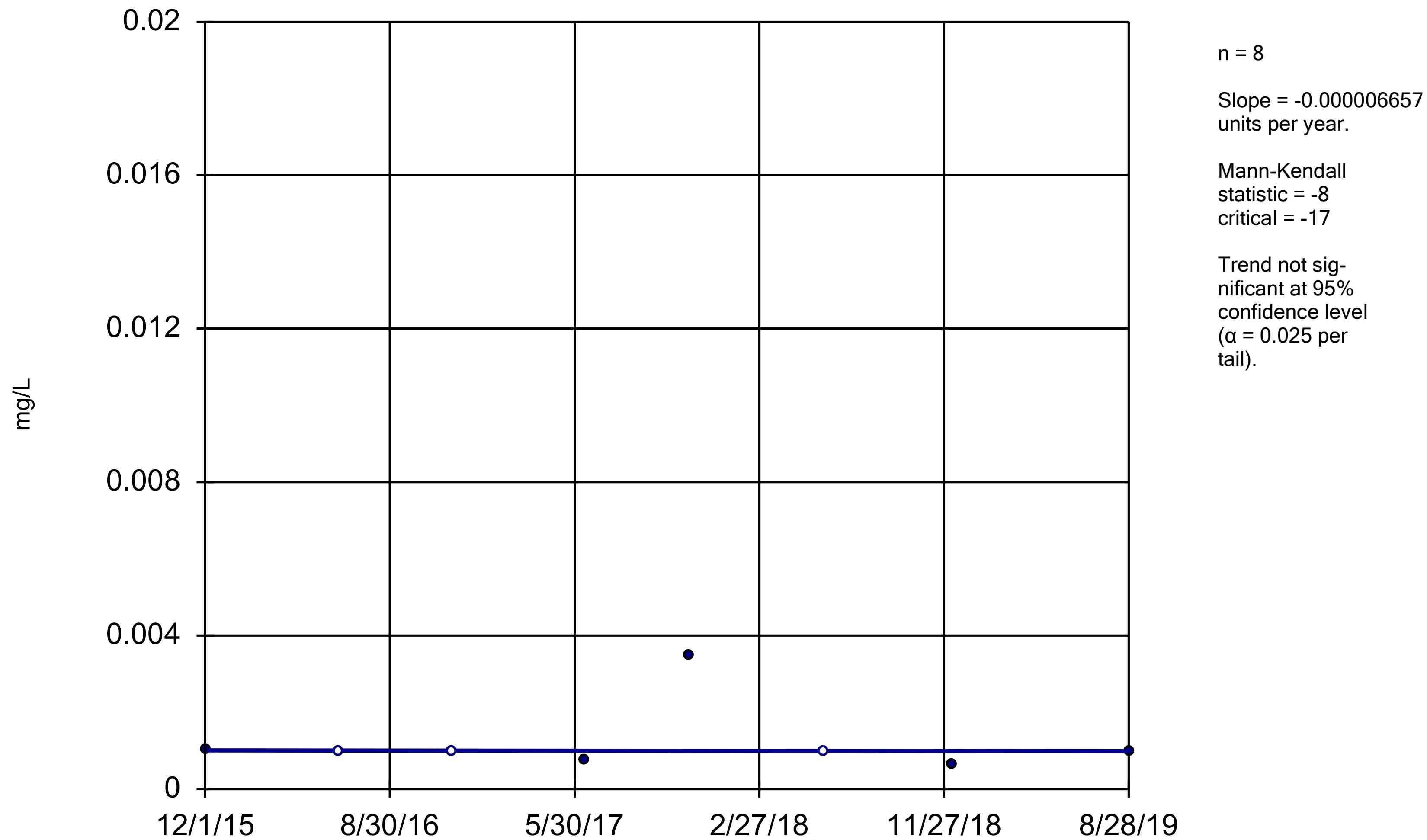
MW-C13



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Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-C8

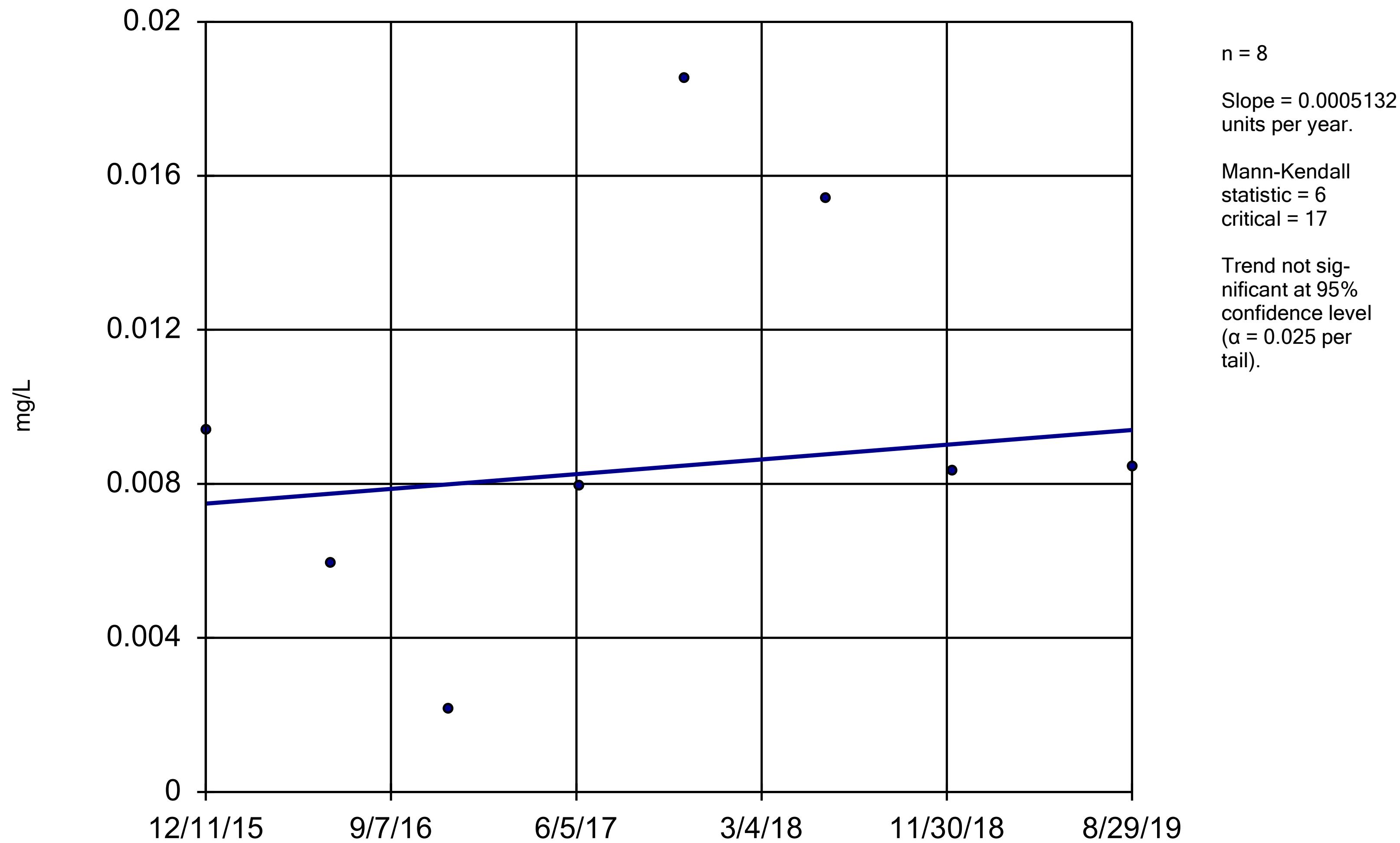


Constituent: 14-Dioxane Analysis Run 9/24/2019 1:22 PM View: VOC Trend Plots

OU3 HBR Client: Geotechnology Data: OU3 Master Data File

Sen's Slope Estimator

MW-C13

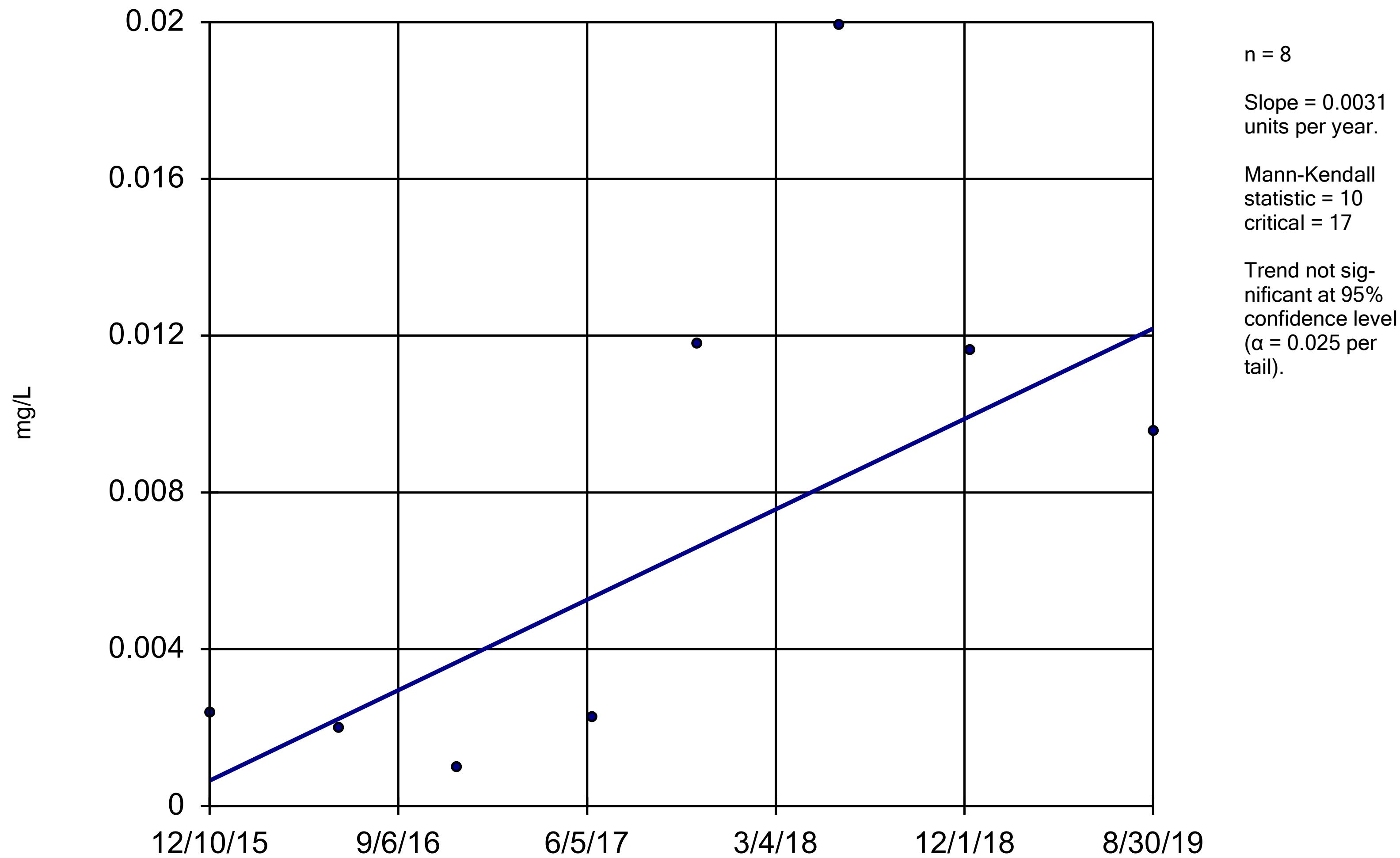


Constituent: 14-Dioxane Analysis Run 9/24/2019 1:22 PM View: VOC Trend Plots

OU3 HBR Client: Geotechnology Data: OU3 Master Data File

Sen's Slope Estimator

MW-C15

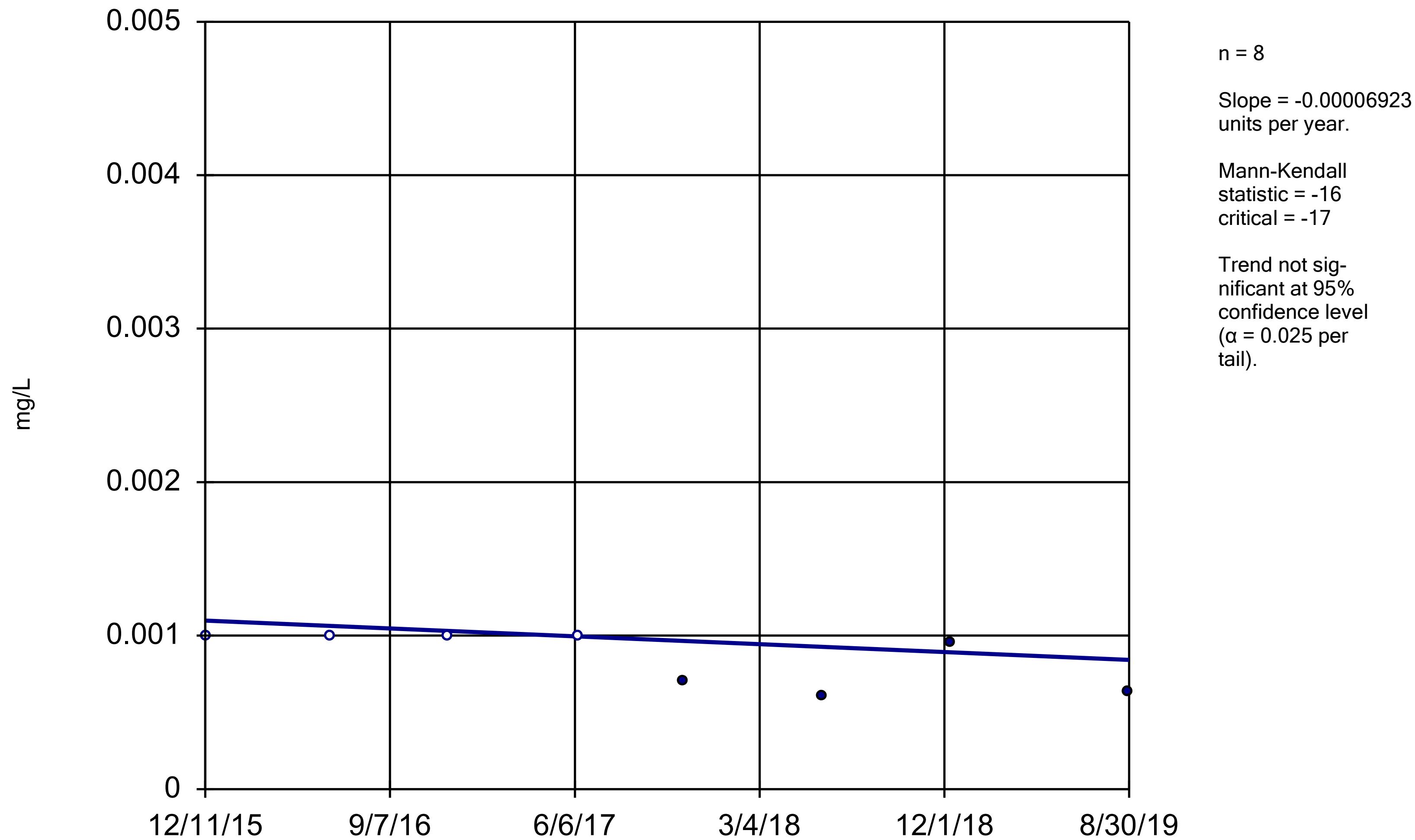


Constituent: 14-Dioxane Analysis Run 9/24/2019 1:22 PM View: VOC Trend Plots

OU3 HBR Client: Geotechnology Data: OU3 Master Data File

Sen's Slope Estimator

MW-C3

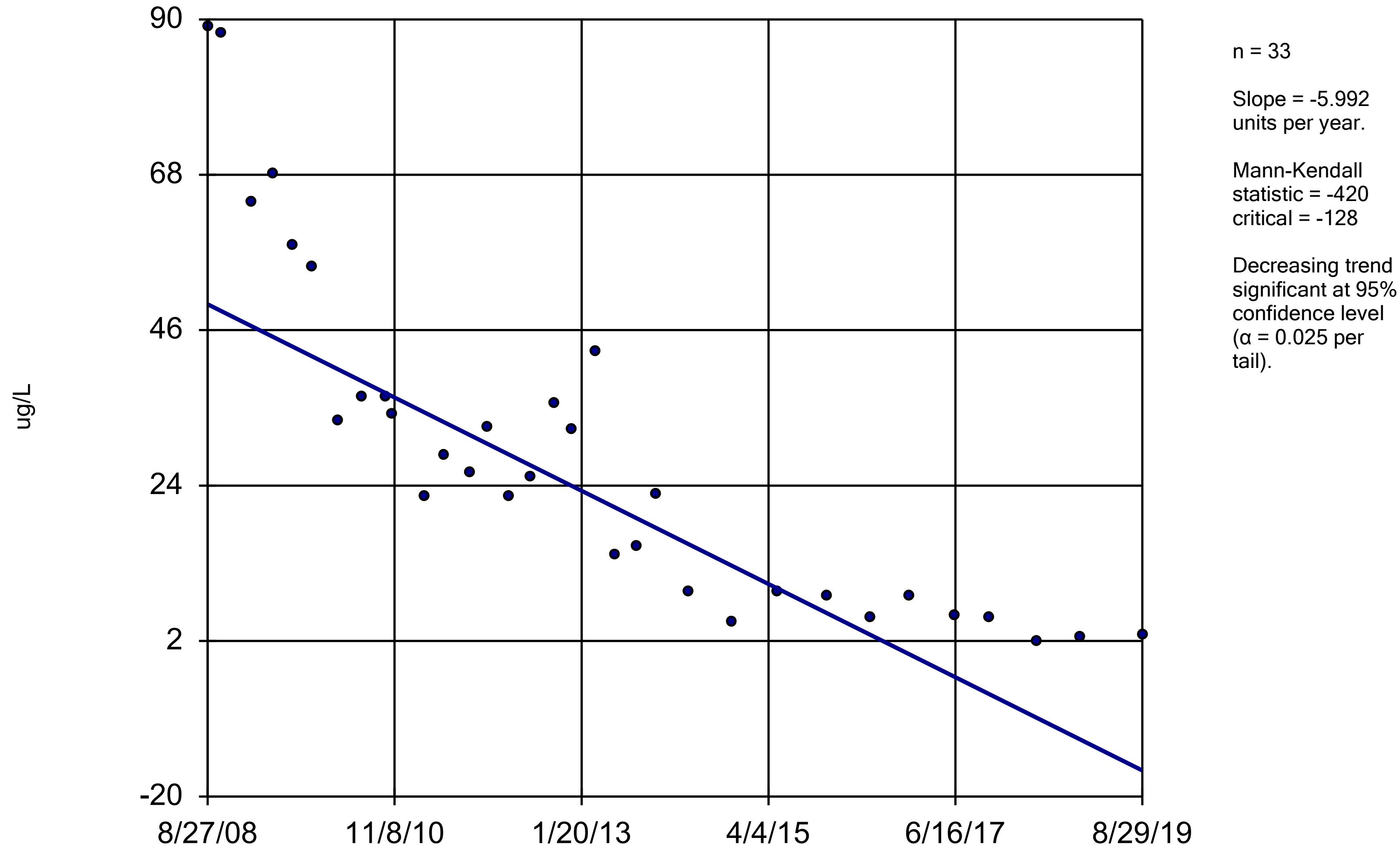


Constituent: 14-Dioxane Analysis Run 9/24/2019 1:22 PM View: VOC Trend Plots

OU3 HBR Client: Geotechnology Data: OU3 Master Data File

Sen's Slope Estimator

MW-C12

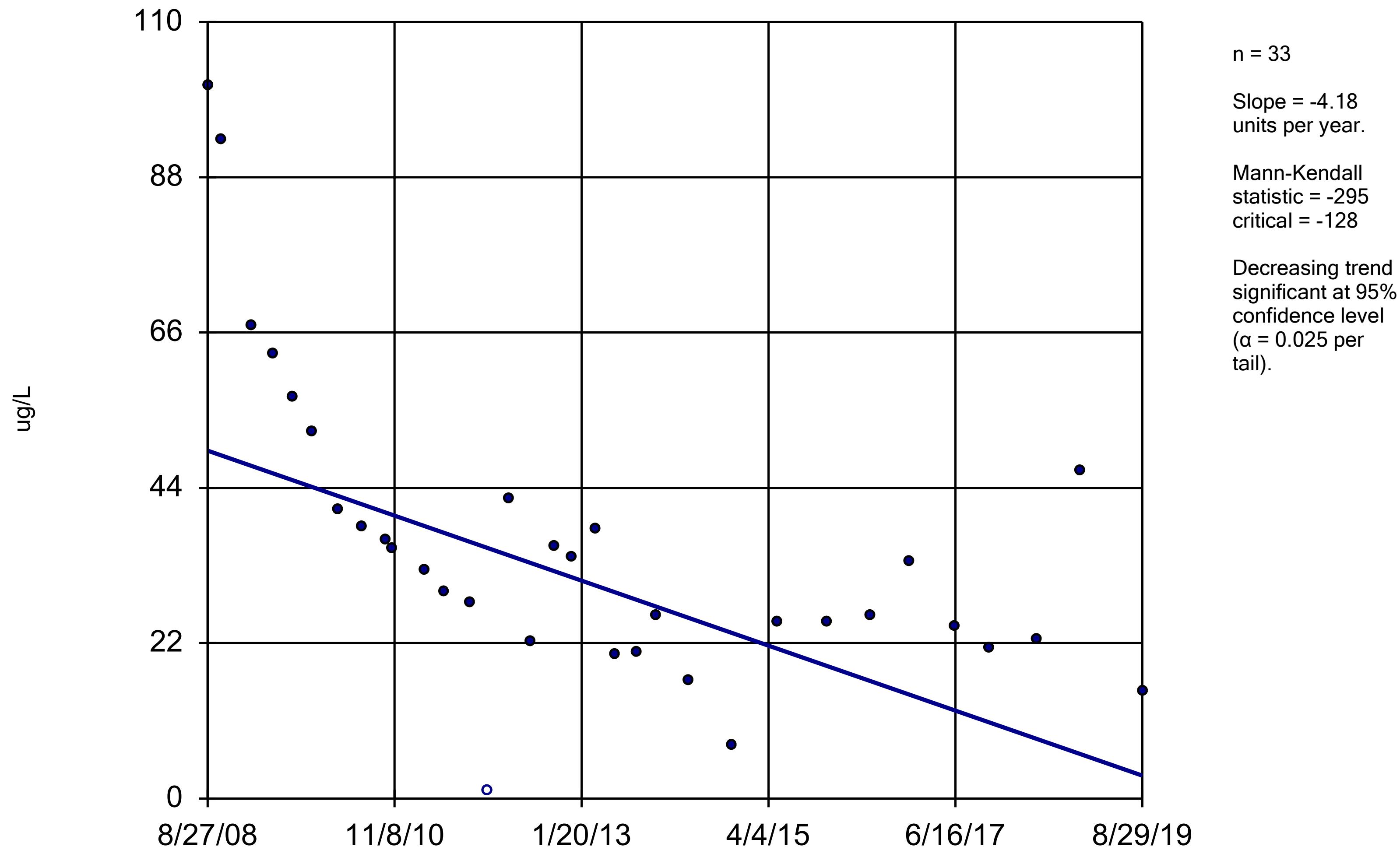


Constituent: Benzene Analysis Run 9/24/2019 1:23 PM View: VOC Trend Plots

OU3 HBR Client: Geotechnology Data: OU3 Master Data File

Sen's Slope Estimator

MW-C13

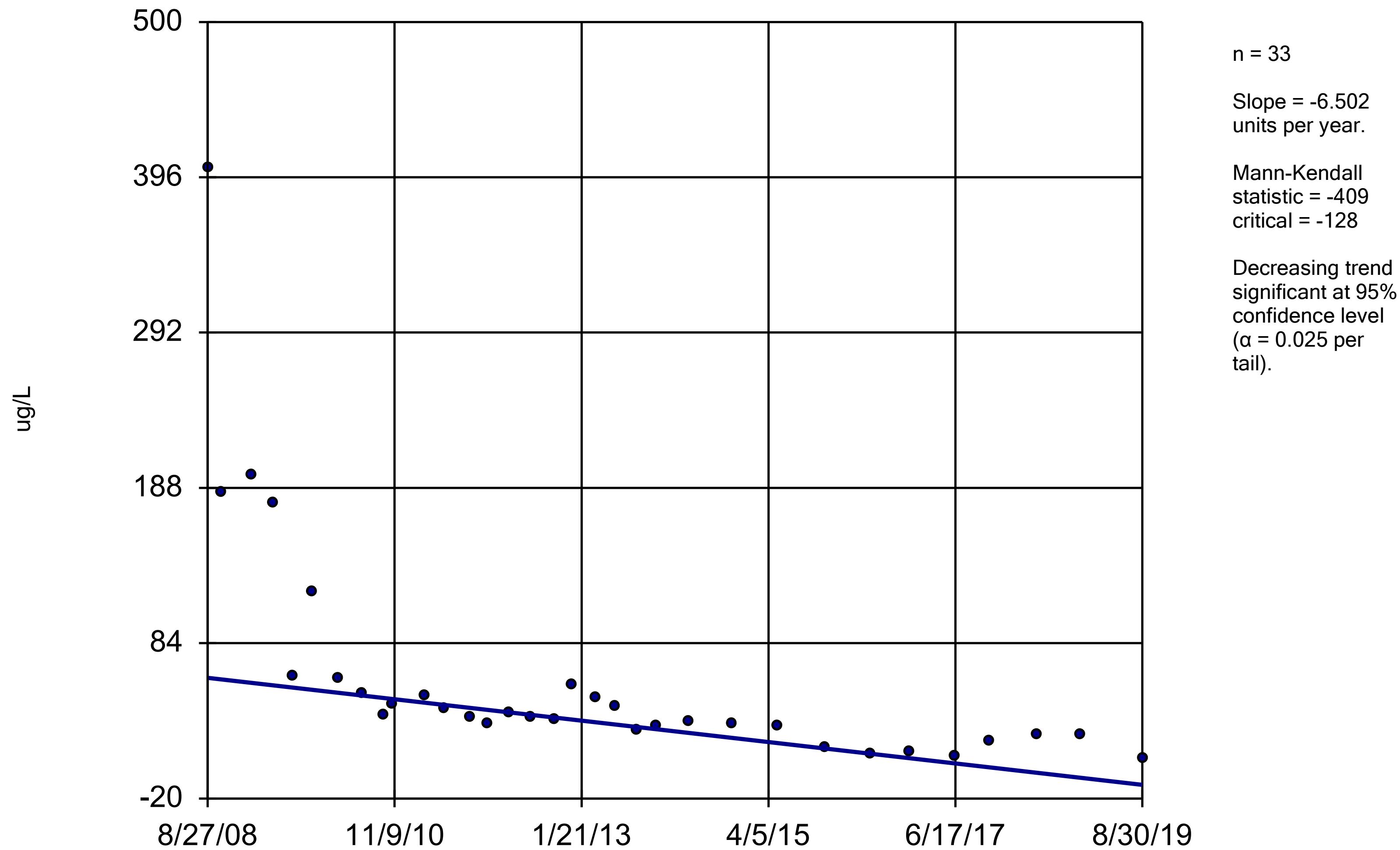


Constituent: Benzene Analysis Run 9/24/2019 1:23 PM View: VOC Trend Plots

OU3 HBR Client: Geotechnology Data: OU3 Master Data File

Sen's Slope Estimator

MW-C11

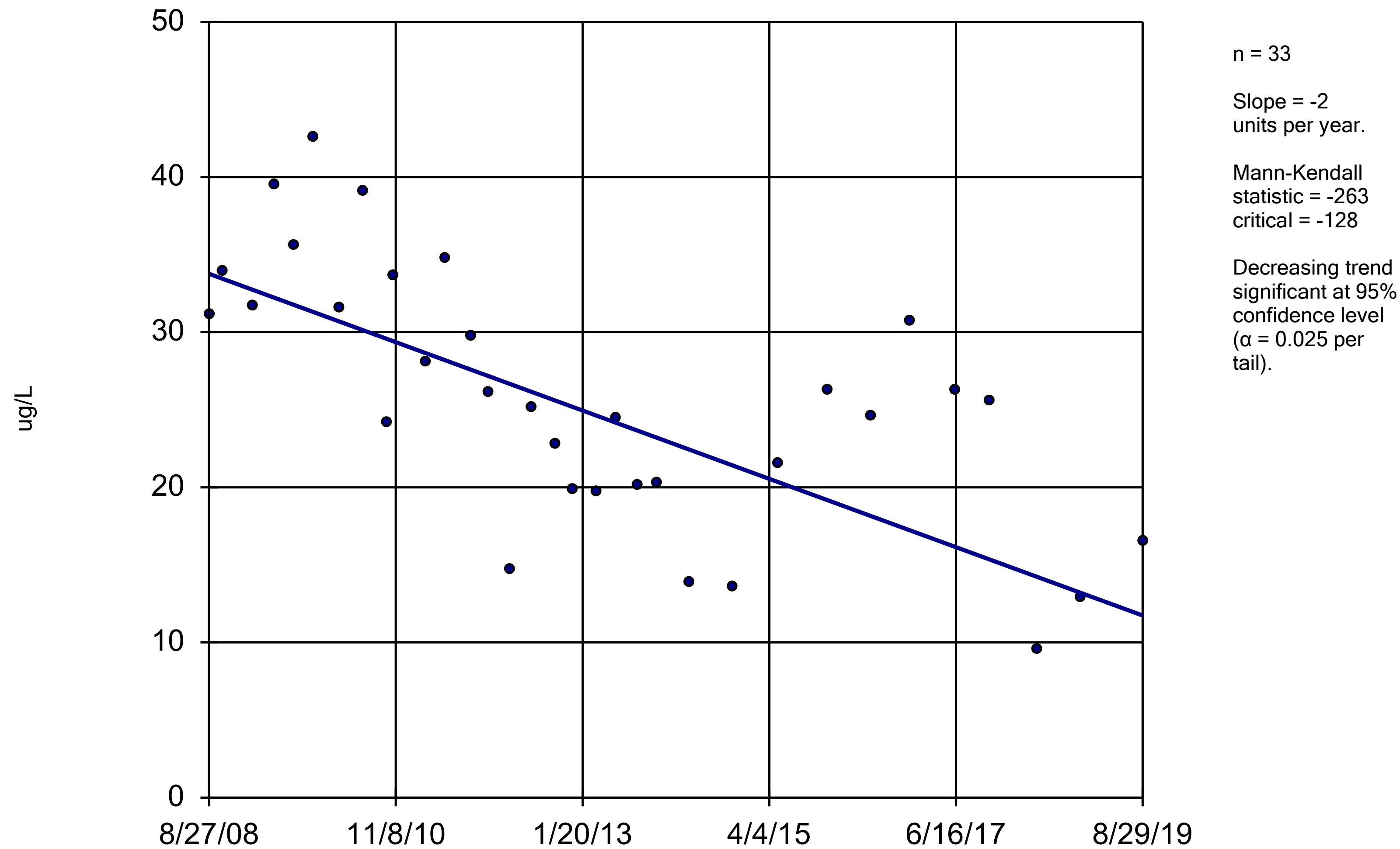


Constituent: cis-12-Dichloroethene Analysis Run 9/24/2019 1:23 PM View: VOC Trend Plots

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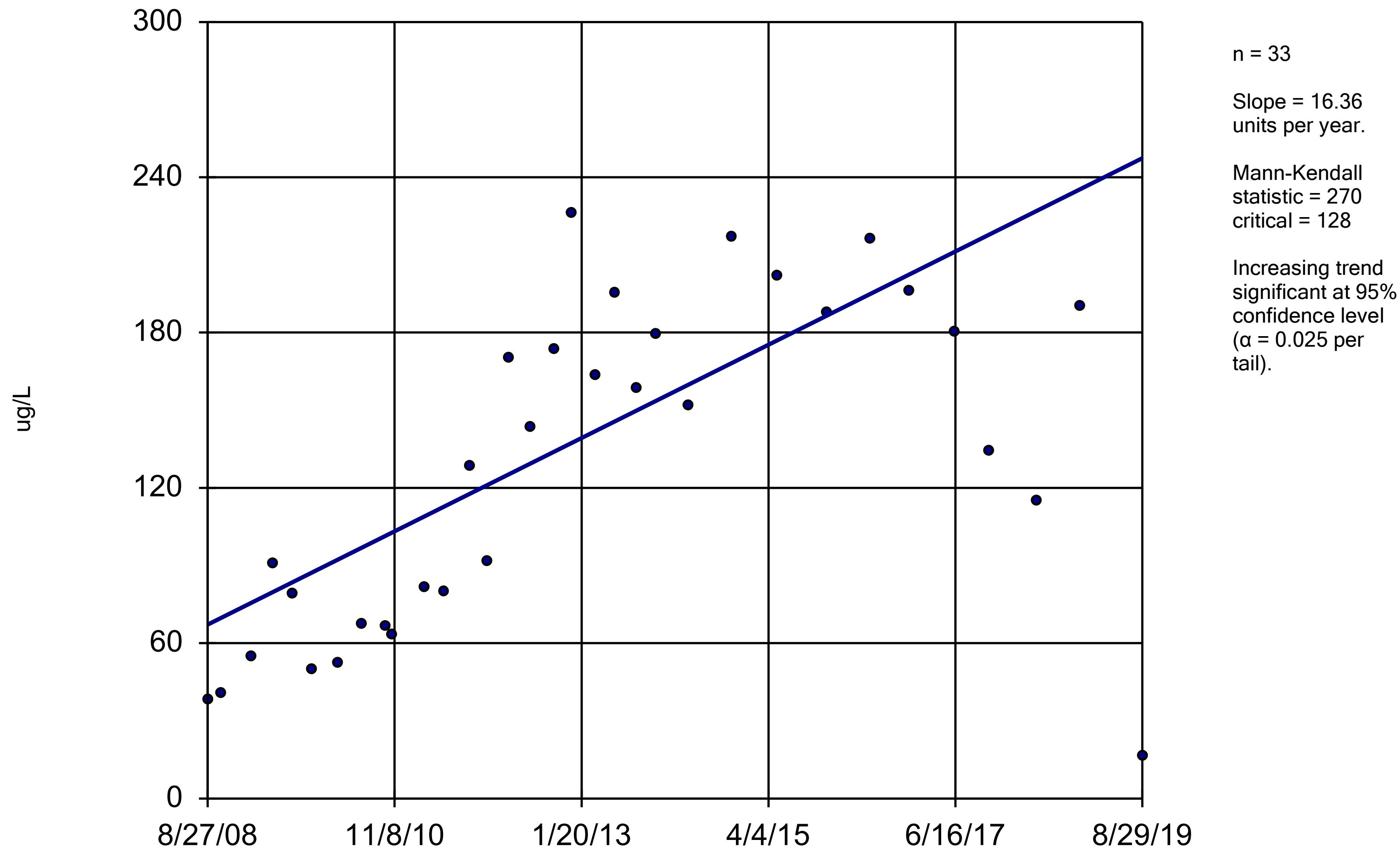
Sen's Slope Estimator

MW-C12



Sen's Slope Estimator

MW-C13

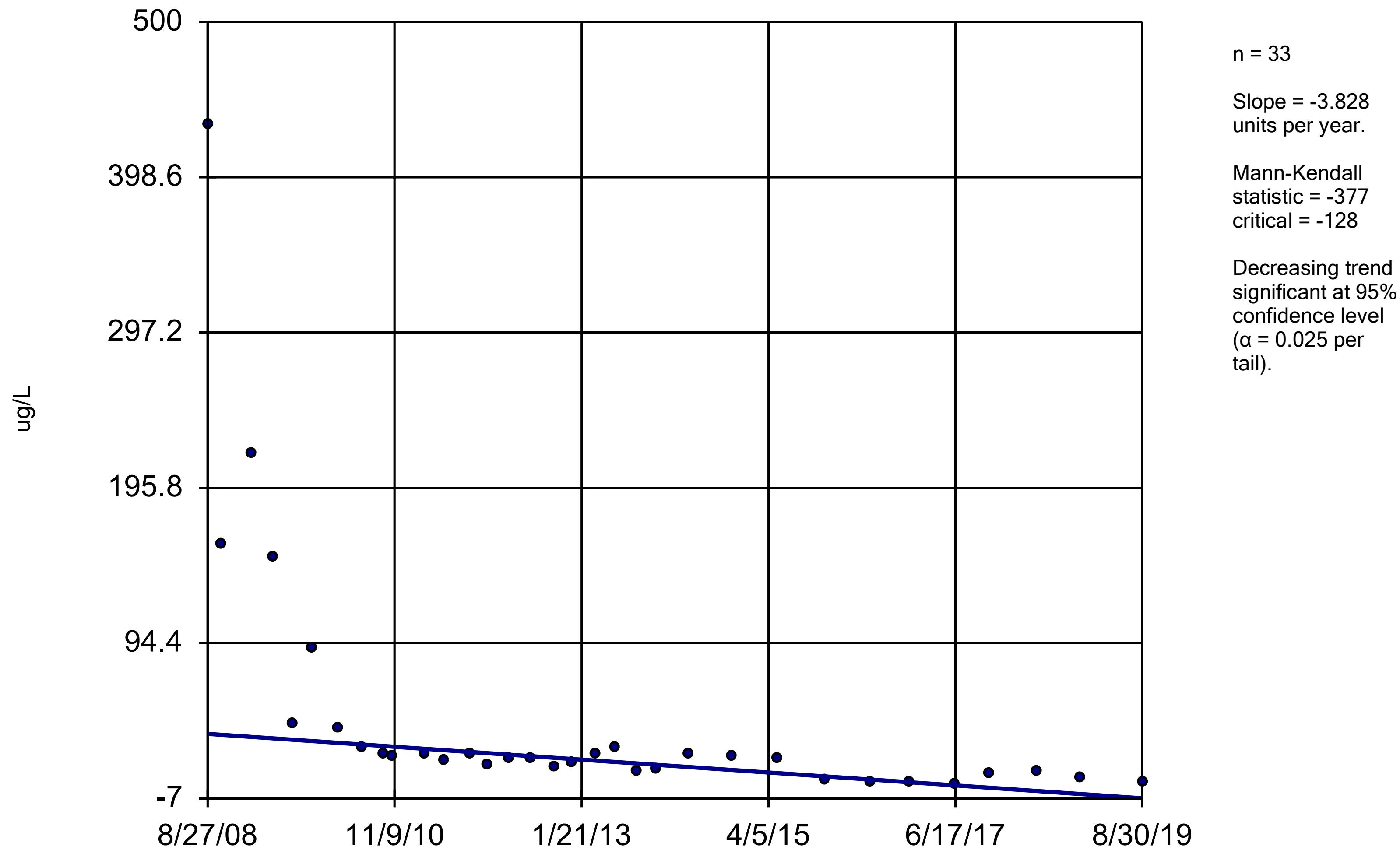


Constituent: cis-12-Dichloroethene Analysis Run 9/24/2019 1:23 PM View: VOC Trend Plots

OU3 HBR Client: Geotechnology Data: OU3 Master Data File

Sen's Slope Estimator

MW-C11

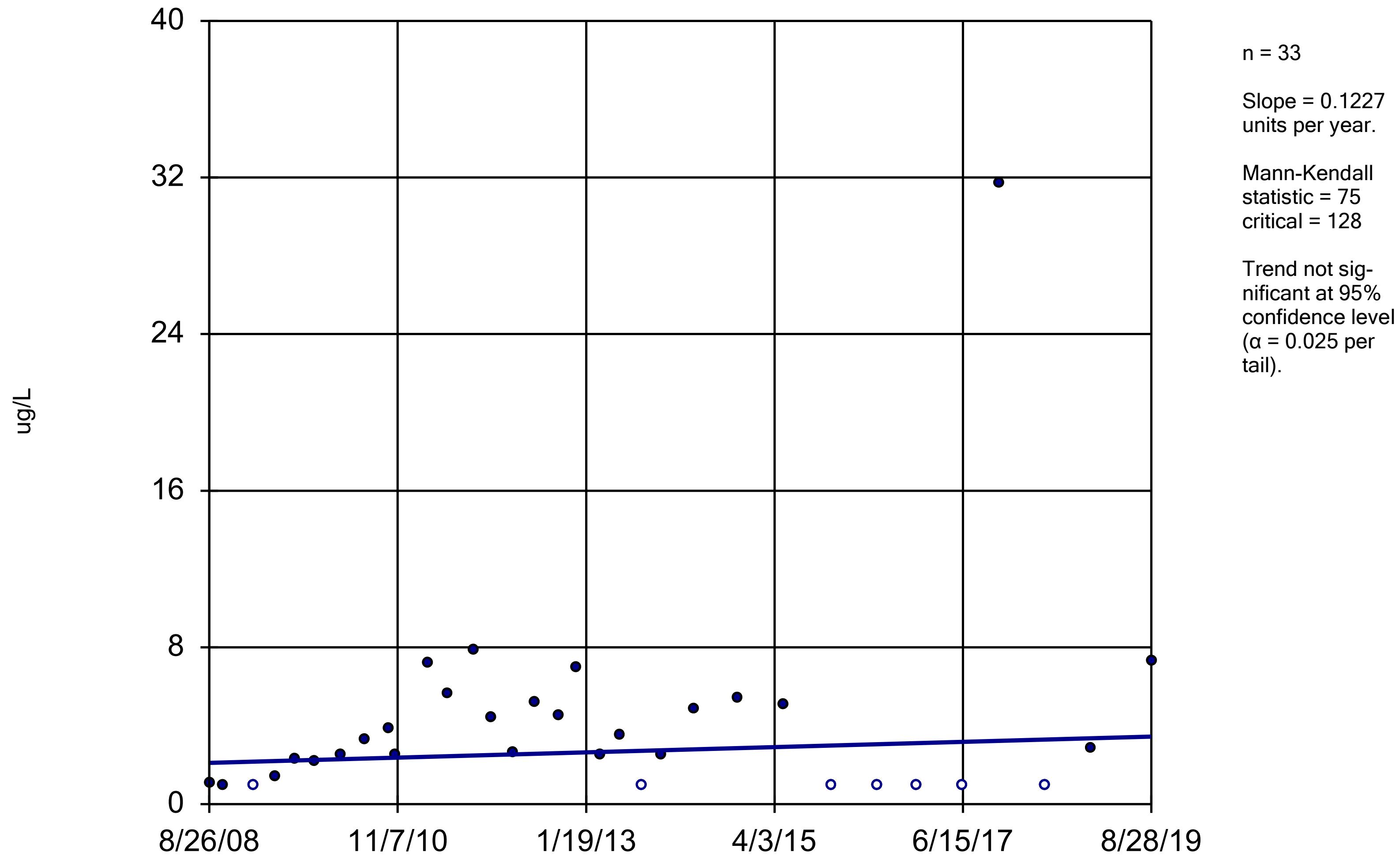


Constituent: Vinyl chloride Analysis Run 9/24/2019 1:23 PM View: VOC Trend Plots

OU3 HBR Client: Geotechnology Data: OU3 Master Data File

Sen's Slope Estimator

MW-C8



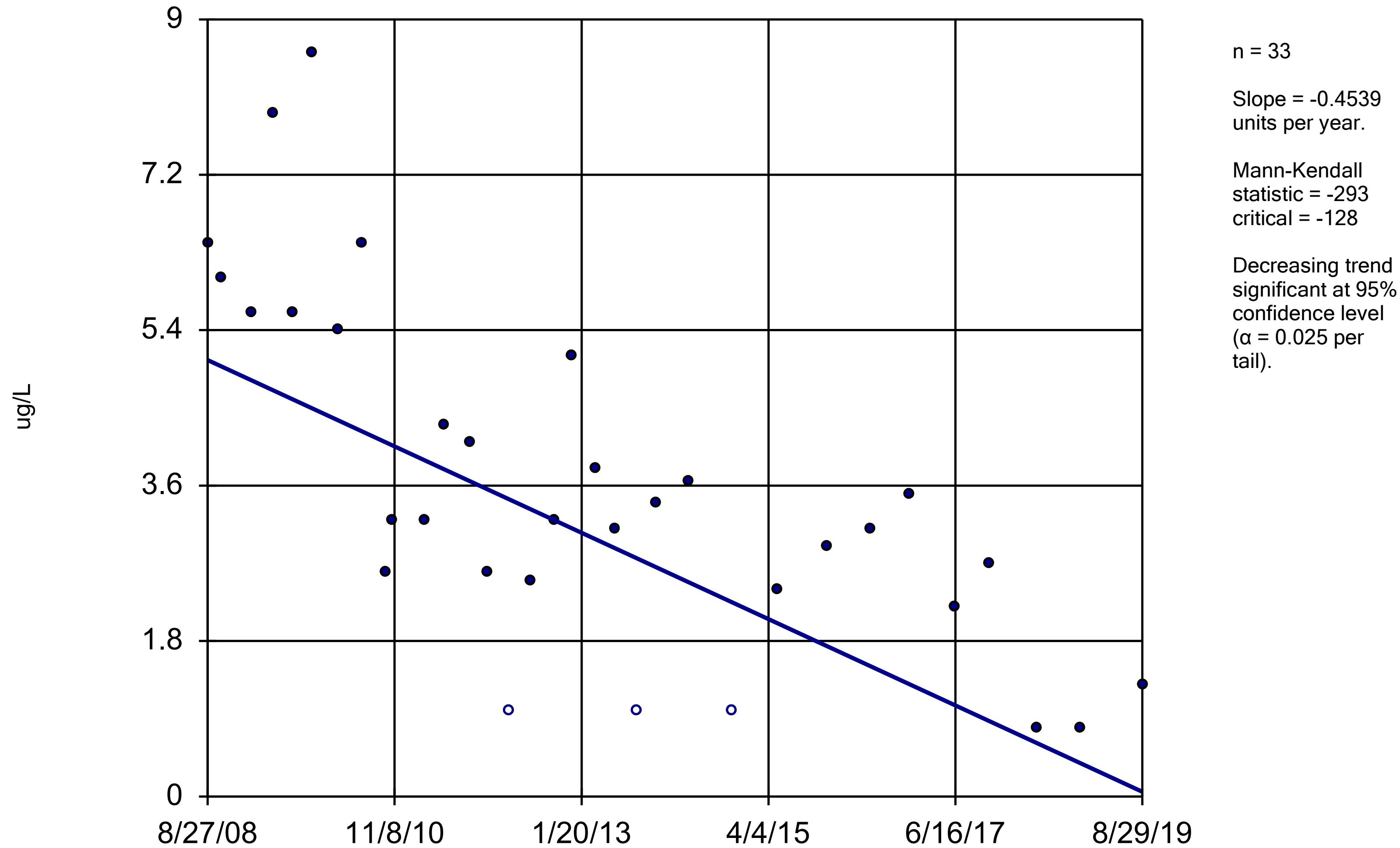
Constituent: Vinyl chloride Analysis Run 9/24/2019 1:23 PM View: VOC Trend Plots

OU3 HBR Client: Geotechnology Data: OU3 Master Data File

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Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-C12

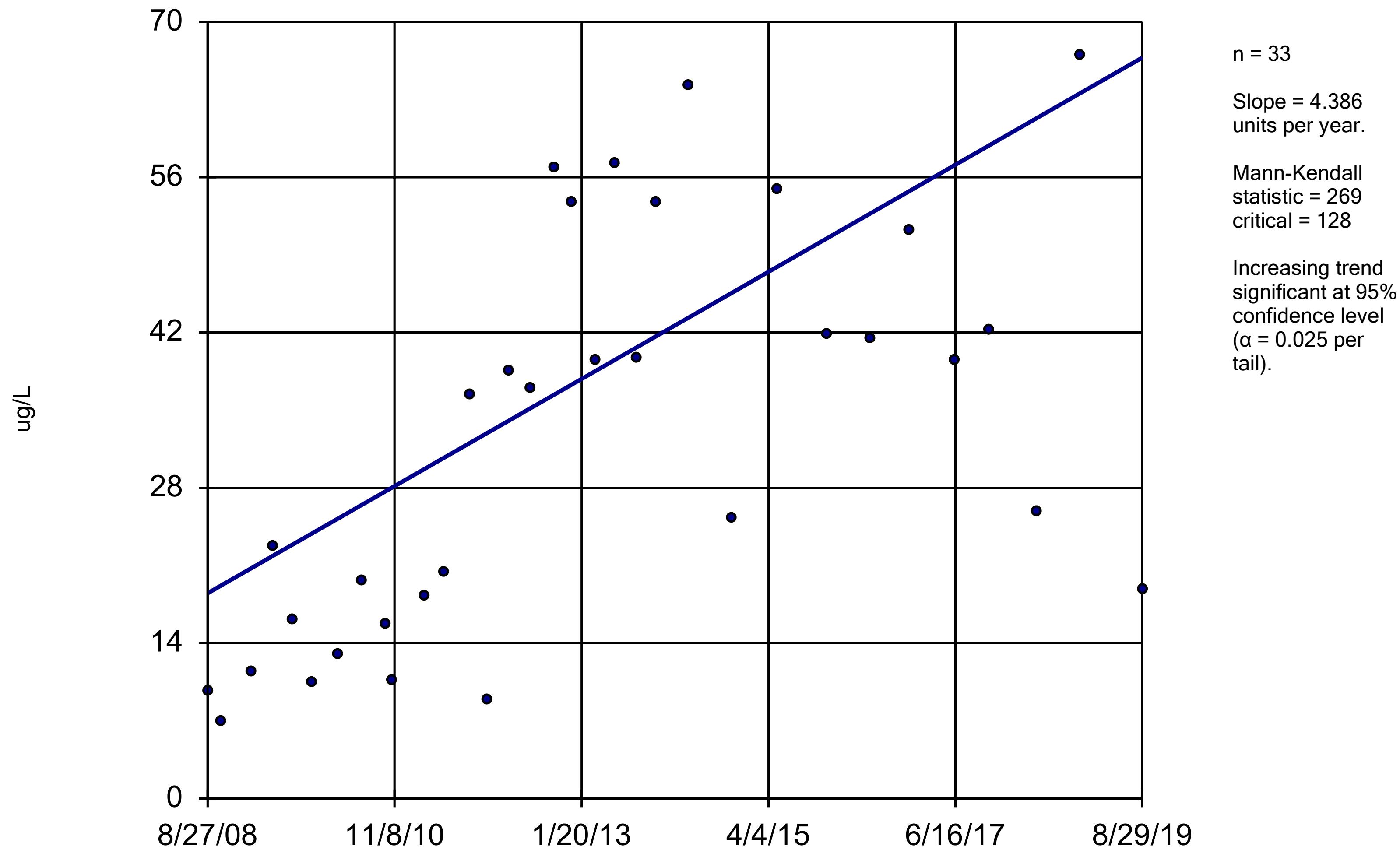


Constituent: Vinyl chloride Analysis Run 9/24/2019 1:23 PM View: VOC Trend Plots

OU3 HBR Client: Geotechnology Data: OU3 Master Data File

Sen's Slope Estimator

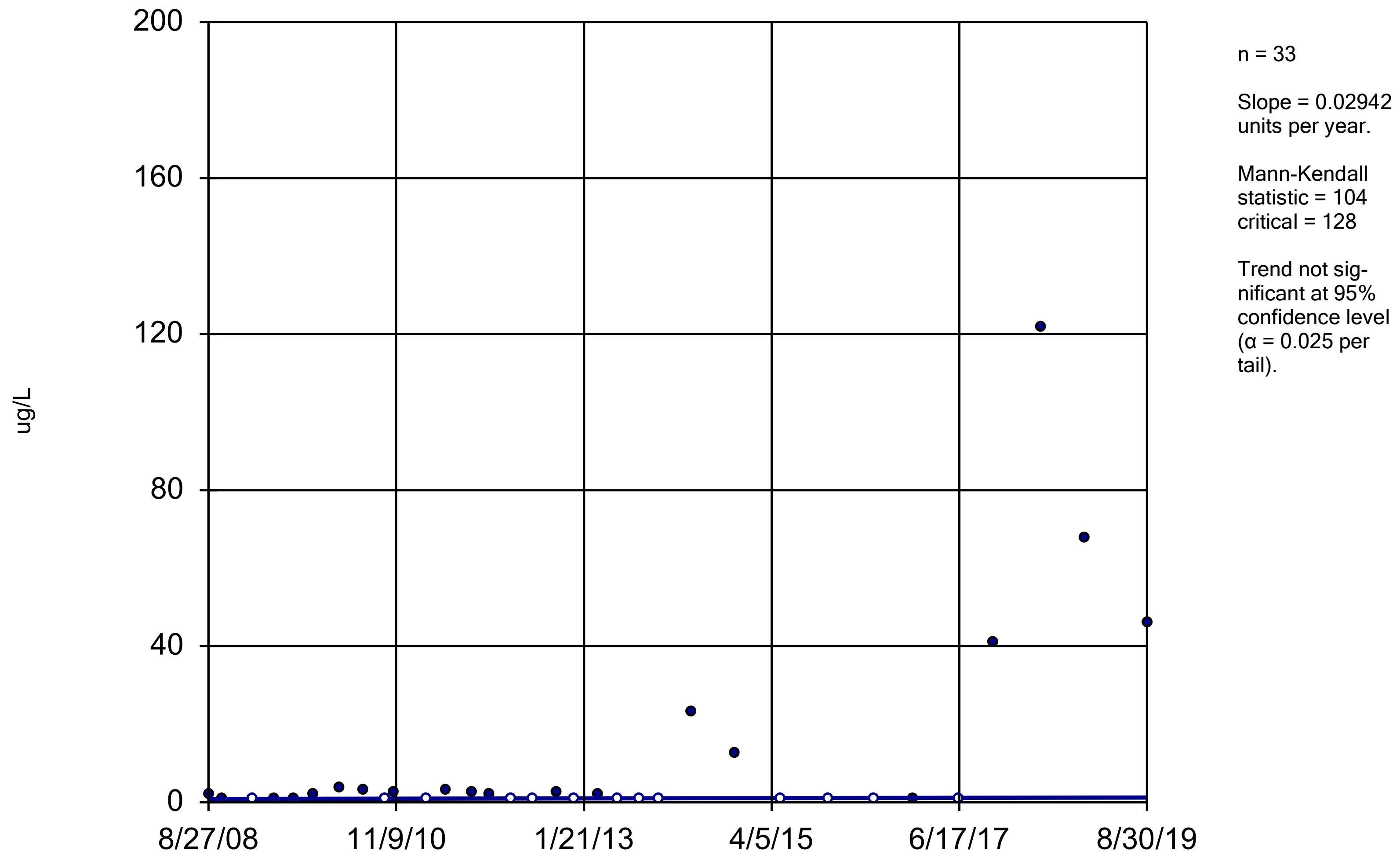
MW-C13



Sanitas™ v.9.6.23 Sanitas software licensed to Geotechnology. EPA
Hollow symbols indicate censored values.

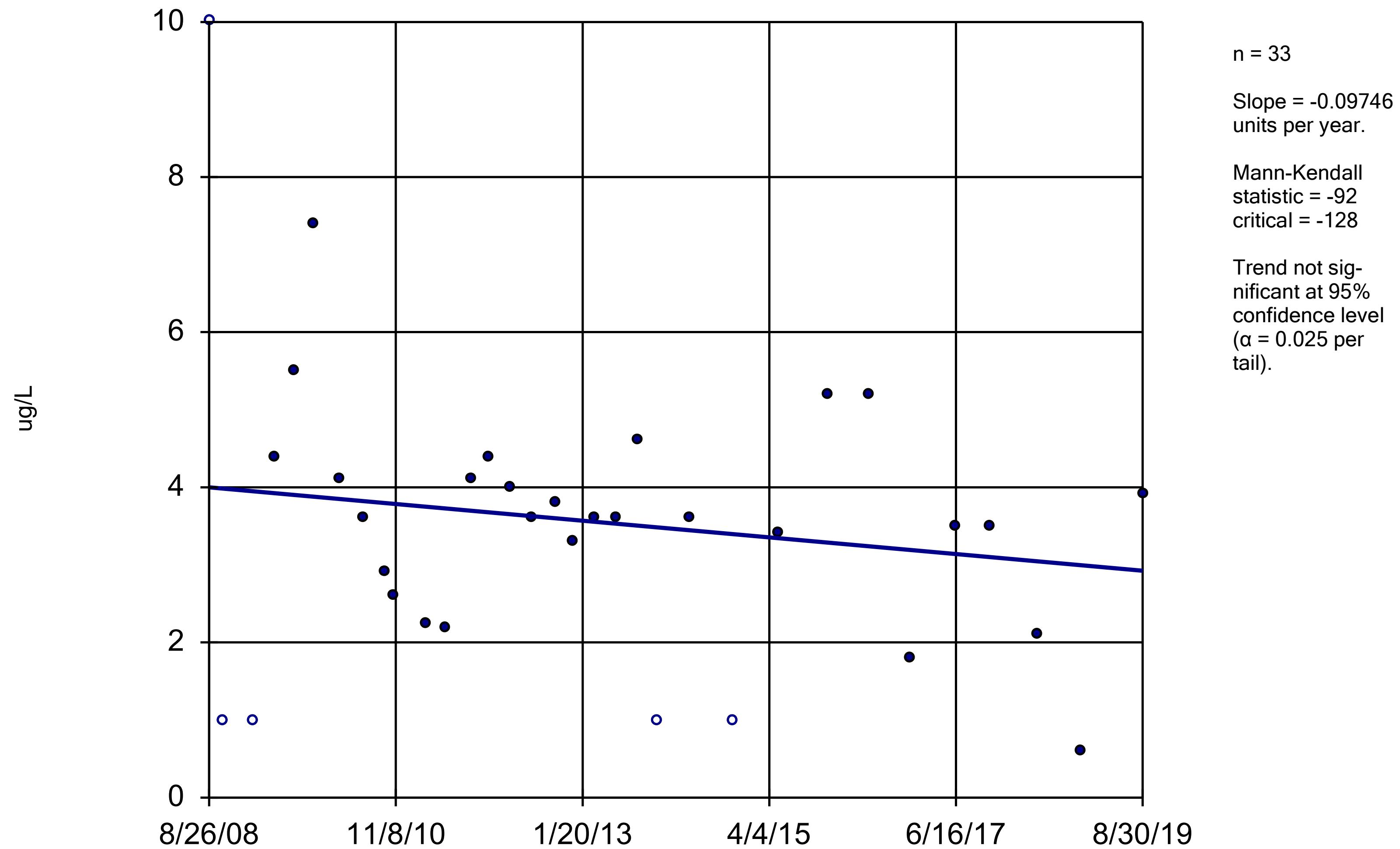
Sen's Slope Estimator

MW-C15



Sen's Slope Estimator

MW-C3



Constituent: Vinyl chloride Analysis Run 9/24/2019 1:23 PM View: VOC Trend Plots

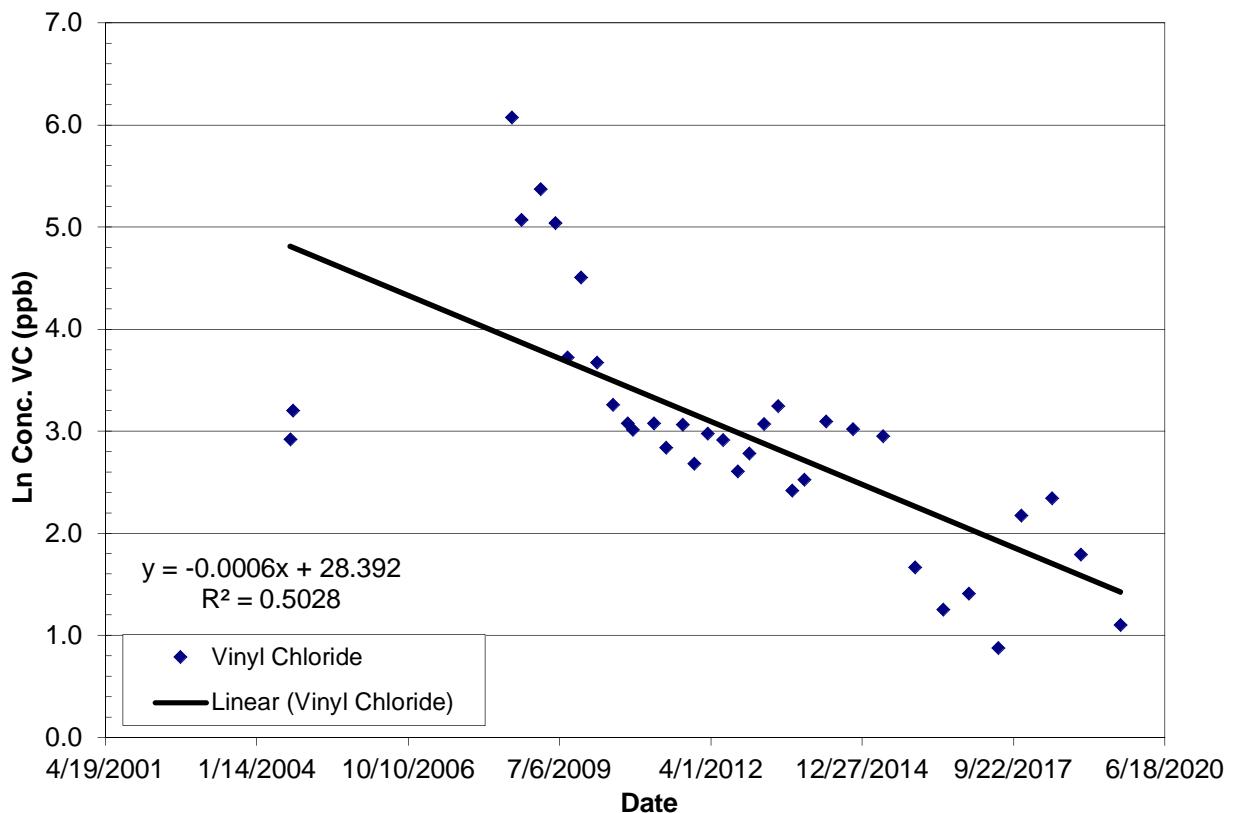
OU3 HBR Client: Geotechnology Data: OU3 Master Data File



APPENDIX G

REMEDIAL TIMEFRAME CALCULATIONS

MW-C11 Vinyl Chloride



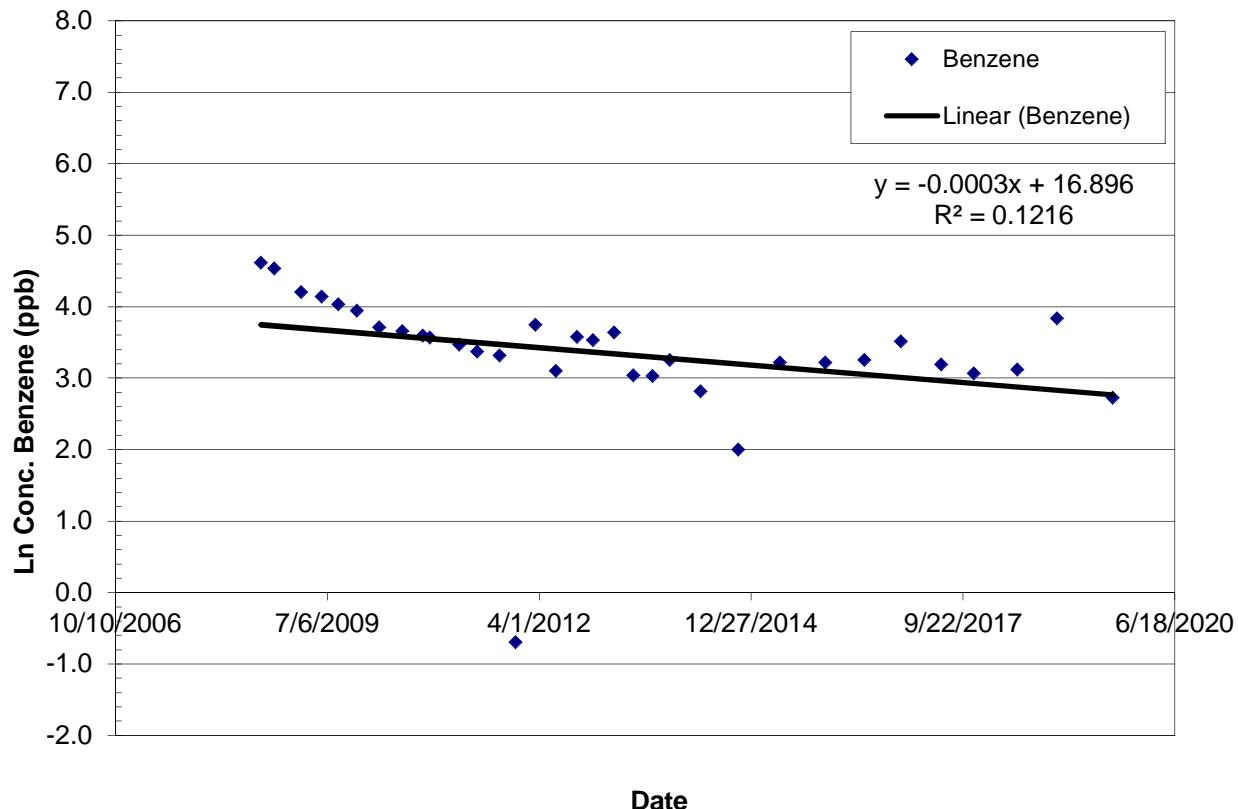
Estimated Attenuation Rate and Remedial Timeframe for Vinyl Chloride at MW-C11

Regression Statistics				
R	0.709			
R^2	0.503			
Adjusted R^2	0.488			
Standard Error	0.832			
Observations	35			

k_{point} =	Slope (ln(conc) per day)	Regression (Trend Line) Equation		Confidence Interval	
		Coefficients	Standard Error	Lower 95%	Upper 95%
	-0.000617		0.000107	-0.000834	-0.000400

Remedial Timeframe Estimates				
C_{goal} =	MCL (ppb)	2	2	2
C_{start} =	Current Concentration (ppb)	3	3	3
	$\ln(C_{MCL}/C_{now})$	-0.405	-0.405	-0.405
$t=$	Time to MCL (years)	2	1	3

MW-C13 Benzene



Estimated Attenuation Rate and Remedial Timeframe for Benzene at MW-C13

Regression Statistics	
R	0.314
R ²	0.099
Adjusted R ²	0.070
Standard Error	0.860
Observations	33

k_{point} =	Slope (ln(conc) per day)	Regression (Trend Line) Equation		Confidence Interval	
		Coefficients	Standard Error	Lower 95%	Upper 95%
		-0.000243	0.000132	-0.000513	0.000026

Remedial Timeframe Estimates				
C_{goal} =	MCL (ppb)	5	5	5
C_{start} =	Current Concentration (ppb)	15	15	15
	$\ln(C_{MCL}/C_{NOW})$	-1.112	-1.112	-1.112
$t=$	Time to MCL (years)	13	6	-116



APPENDIX H

OU1 DATA SUMMARY

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	EW1	EW1	EW1	EW1	EW1	EW1	EW1	EW1	EW1
Sample Date	10/3/00	10/15/01	9/26/02	5/28/03	10/21/03	6/3/04	11/10/04	6/1/05	11/4/05
Sample Taken by	FC	FC	FC/GEO	FC	FC	FC	FC	FC	FC
Aroclors	800	640	7700	890	310	170	350 D	470	4400 DE
Acetone	<10,000	<10	23000	<1000	<5000	<2	<2	<200	5.7
Benzene	<1000	250	<5000	140J	200J	160E	>110<250	83 J,D	100
2-Butanone	<5000	<5	<25000	<2500	<12000	<5	<5	<500	<5
Chlorobenzene	1000	680	<5000	930	1100J	990J,D	650D	450 D	660 D
Chloroethane	<2000	180	<10000	<1000	<5000	470	48	<200	33
1,1-dichloroethane	2900	1100	3500J	6700	4300	2700J,D	490D	1900 D	2100 D
1,2-dichloroethene (total)	65,000	87,000	68,000	120,000	89,000	75000D	65000D	58000 D	68400 BDE
1,1-dichloroethene	<2500	320	<5000	800	510J	1300E	3300D	650 D	410 D
Ethylbenzene	<2500	61	29	<500	<2500	35E	27	<100	32
2-hexanone		<5	<5	<2500	<12,000	<5	<5	<500	<5
1,1,2,2-tetrachloroethane	<2500	28	37	<500	<2500	5.3	6.9	<100	<1
toluene	1100	630	<5000	470J	550J	72E	220J,D	130 D	150 JD
1,1,2-trichloroethane	<2500	24	NOT RUN	<500	<2500	23	16	<100	16
Trichloroethene	35,000	34,000	40,000	74,000	44,000	24000D	21000D	22000 D	19000 BDE
Vinyl Chloride	36,000	28,000	5,500	8,600	5,400	9100J,D	5000D	3900 D	4400 D
Xylenes (total)	<2500	300	250	250	<7500	110	97	<300	190 JBD

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range

B Method Blank Contamination

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	EW1	EW1	EW1	EW1	EW1	EW1	EW1	EW1	EW1
Sample Date	5/31/06	11/6/06	6/4/07	11/20/07	6/6/08	11/12/08	6/17/09	11/12/09	5/20/10
Sample Taken by	FC	FC	SL	SL	SL	SL	SL	SL	SL
Aroclors	590 D	206 D,E	2400 D	650-3270	750	44-50	66-77	57-62	44
Acetone	<1000	<2		29	75	<2	<2	0.71J	<440
Benzene	94 J,D	>130<2000	64-94	81-84	74-90	68-73	86-100	52-67	53J
2-Butanone	<5	<5	<5	<5	<5	<5	<5	<5	<230
Chlorobenzene	580 D	>390<2000	180-360	220-590	140-620	150-610	350-550	160-420	550
Chloroethane	<2		32	18	24	15	19	11	14 <120
1,1-dichloroethane	1700 D	>1200<2700	1200-1400	620-810	470-1500	540-1400	1000-2100	660-1100	1000
1,2-dichloroethene (total)	60000DE	>6500<75000	84000 B,D,E	4200-32000	2400-40000	3000-42000B	57000	2600-40000	24000
1,1-dichloroethene	270 J,D	420 J,D	1200-1400	120-140	220-230	150-160	240-310	120-660	110J
Ethylbenzene		24	35	18	12	18	15	<1	13 <68
2-hexanone	<5	<5	<5	<5	<5	<5	<5	<5	<160
1,1,2,2-tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<72
toluene	160 J,D	>150<2000		26	90-170	50-90	66-100	65	34 64J
1,1,2-trichloroethane		6.3	9.3	2.8	1.7	5.1	3.9	7.7	2.1 <110
Trichloroethene	13000 D	>2500<14,000	2700-12000	1200-2200	830-3600	520-2400	1800-5400	830-2000	68
Vinyl Chloride	3400 D	>2000<5500	1800-2100	1100-3200	610-3500	970-3000	1400-4000	1200-2000	2300
Xylenes (total)	<1500	>120<6000		57	37	52	45	33	35 <110

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range

B Method Blank Contamination

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	EW1	EW1	EW1	EW1	EW1	EW1	EW1
Sample Date	10/21/10	6/3/11	11/3/2011	6/7/12	11/9/12	6/11/13	11/11/13
Sample Taken by	SL	SL	SL	SL	SL	SL	SL
Aroclors	37	12D	570D	92D	510	340	350
Acetone	<2	<17	<2000	26J,D	8.0J	<170	11JB
Benzene	60J,D	72D	<1000	45D	22	35J	37
2-Butanone	<5	<26	<5000	<120	<0.39	<9.8	<0.39
Chlorobenzene	800D	280D	<1000	520D	240J	240	410
Chloroethane	20	<100	<2000	7.5J,D	<0.38	<9.5	9.2J
1,1-dichloroethane	730D	1900D	1000D	170D	330	1500	270
1,2-dichloroethene (total)	18000J,D	58000D	23000D	4600D	8,400	32,000	2800
1,1-dichloroethene	65J,D	240D	120J,D	21J,D	32	180	49
Ethylbenzene	12	19J,D	<1000	<25	6.8	15J	17
2-hexanone	<5	<250	<5000	<120	<0.59	<15	<0.59
1,1,2,2-tetrachloroethane	<1	<50	<1000	<25	<0.43	<11	<0.43
toluene	160D	26J,D	<1000	89D	49	26	99
1,1,2-trichloroethane	<1	<50	<1000	<25	<0.57	<14	<0.57
Trichloroethene	23	1400D	950J,D	19J,D	6.2	110J	2.1J
Vinyl Chloride	7800J,D	2400J,D	1300J,D	3700D	1,600	2,800	3800
Xylenes (total)	18	51J,D	<3000	15J,D	17	41	44

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range

B Method Blank Contamination

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	EW1	EW1	EW1	EW1	EW1	EW1	EW1
Sample Date	6/9/14	10/30/14	6/3/2015	11/5/15	6/1/16	11/9/16	6/6/17
Sample Taken by	SL	SL	SL	SL	SL	SL	SL
Aroclors	180	380	89	1700	570	2610	95
1,4-dioxane				220	130	54	110
Acetone	<33	<6.7	<6.7	<67	<6.7	<67	<67
Benzene		51	19	14	14J	19	28J
2-Butanone	<2.0	<0.39	<0.39	<3.9	5.7J	<3.9	<3.9
Chlorobenzene	1400	240J	260	200	370J	660	38J
Chloroethane	<1.9	8.0J	<0.38	<3.8	5.0J	<3.8	28J
1,1-dichloroethane		59	560	570	470	600J	500
1,2-dichloroethene (total)	7,400	16,000	13000	11,000	4,700	15,000	14000
1,1-dichloroethene	7.9J	75	44	37J	46	38J	61
Ethylbenzene	11J	9.4	6.7	8.2J	11	5J	3.2J
2-hexanone	<3.0	<0.59	<0.59	<5.9	<0.59	<5.9	<5.9
1,1,2,2-tetrachloroethane	<2.2	<0.43	<0.43	<4.3	<0.43	<4.3	<4.3
toluene		120	32	20	21J	36B	54
1,1,2-trichloroethane	<2.9	<0.57	<0.57	<5.7	<0.57	<5.7	<0.57
Trichloroethene	<1.5	7.2	3.2J	<2.9	0.93J	<2.9	220
Vinyl Chloride		4,100	1,800	1700	1,500	1,800	2,600
Xylenes (total)	29J	27	18	25J	43	37J	10J

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range

B Method Blank Contamination

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	EW1	EW1 (50')					
Sample Date	11/10/17	6/5/18	11/8/2018				
Sample Taken by	SL	SL	SL	SL	SL	SL	SL
Aroclors	470	140	180				
1,4-dioxane	430	170	260				
Acetone	<130	160J	<32				
Benzene	40J	30J	30J				
2-Butanone	<7.8	<3.9	<15				
Chlorobenzene	930	720	690				
Chloroethane	<7.6	7.1J	<10				
1,1-dichloroethane	450	480	270				
1,2-dichloroethene (total)	18,000	14,000	10000				
1,1-dichloroethene	54J	44J	17J				
Ethylbenzene	6.9J	7.9J	7.5J				
2-hexanone	<12	<5.9	<36				
1,1,2,2-tetrachloroethane	<8.6	<4.3	<20				
toluene	77J	70	76				
1,1,2-trichloroethane	<11	<5.7	<7.7				
Trichloroethene	<5.8	<2.9	<5.8				
Vinyl Chloride	5,200	2,800	2500				
Xylenes (total)	29J	28J	20J				

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range

B Method Blank Contamination

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	MW2	MW2	MW2	MW2	MW2	MW2	MW2	MW2	MW2
Sample Date	6/18/98	6/10/99	6/15/00	6/12/01	6/6/02	9/26/02	5/28/03	7/1/03	6/2/04
Sample Taken by	FC	FC	FC	FC	FC	GEO	FC	GEO	FC
Aroclors	<1	<1	<1	<1	<1	Not run	<1	<1	<1
Acetone	<50	<50	<10	<10	2.2 *	<20		<20	<2
Benzene	13	14	25	23	24	7		14	12
2-Butanone	<50	<50	<5	<5	<5	<20		<20	<5
Chlorobenzene	<5	<5	<1	<1	<1	<5		<5	<1
Chloroethane	13	<10		2.6	8.4	2.4	<10		<10
1,1-dichloroethane	12	14	11	22	19	7.9		15	16
1,2-dichloroethene (total)	<10	<10		6.2	2.5	1.3J	<10		<10
1,1-dichloroethene	<5	<5	<1	<1	<1	<5		<5	<1
Ethylbenzene	<5	<5	<1	<1	<1	<5		<5	<1
2-hexanone	<50	<50			<5	<20		<20	<5
1,1,2,2-tetrachloroethane	<5	<5	<1	<1	<1	<5		<5	<1
toluene	<5	<5	<1	<1	<1	<5		<5	0.19J
1,1,2-trichloroethane	<5	<5	<1	<1	not run	<5		<5	<1
Trichloroethene	<5	<5	<1	<1	<1	<5		<5	<1
Vinyl Chloride	<10	<10		9.8	6.3	9.5	<5		4.7
Xylenes (total)	<15	<15	<1	<1	<3	<10		<10	<3

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range

B Method Blank Contamination

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	MW2	MW2	MW2	MW2	MW2	MW2	MW2	MW2	MW2
Sample Date	6/1/05	6/1/06	6/8/07	6/5/08	6/18/09	10/21/10	6/2/11	6/6/12	6/12/13
Sample Taken by	FC	FC	SL	SL	SL	SL	SL	SL	SL
Aroclors	<1	<1	<1	<1	029J	ND	ND	ND	ND
Acetone	3.2	<2		11	<2	<2	<2	0.50J	<6.7
Benzene	7.4	2.4	4.1	4	4.7	8.5	7.4	1.7	1.1J
2-Butanone	<5	<5	<5	<5	<5	<5	<5	<5	<0.39
Chlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<0.38
Chloroethane	<2	<2	<2	<2	0.088J	<2	<2	<2	<0.38
1,1-dichloroethane	6	5.6	5.3	4.6	7.5	11	17	5	5.9
1,2-dichloroethene (total)	1.3	<2	<2	<2	1.3J	1.5J	1.4J	0.89J	0.76J
1,1-dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<0.37
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<0.30
2-hexanone	<5	<5	<5	<5	<5	<5	<5	<5	<0.59
1,1,2,2-tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<0.43
toluene	<1	<1	<1	<1	<1	<1	<1	<1	<1.0
1,1,2-trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<0.57
Trichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<0.29
Vinyl Chloride	5.6	2.1	3.4	2.9	5.5	13	7	3.2	3.1J
Xylenes (total)	<3	<3	<3	<3	<3	<3	<3	<3	<0.85

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range

B Method Blank Contamination

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	MW2	MW2	MW2	MW2	MW2 (33')
Sample Date	6/19/14	6/2/15	6/3/16	6/7/17	6/4/18
Sample Taken by	SL	SL	SL	SL	SL
Aroclors	ND	ND	ND	ND	ND
1,4-dioxane			8.7	5.5	3.0J
Acetone	<6.7	<6.7	<6.7	<6.7	<6.7
Benzene	3.4J	0.72J	0.94J	0.46J	1.0J
2-Butanone	<0.39	1.2J	7.8J	<0.39	<0.39
Chlorobenzene	<0.38	<0.38	<0.38	<0.38	<0.8
Chloroethane	<0.38	<0.38	<0.38	<0.38	<0.38
1,1-dichloroethane		9.9	3.6J	8.1	3.5J
1,2-dichloroethene (total)	1.6J	0.70J	1.3J	1.2J	0.78J
1,1-dichloroethene	<0.37	<0.37	<0.37	<0.37	<0.37
Ethylbenzene	<0.30	<0.30	<0.30	<0.30	<0.30
2-hexanone	<0.59	<0.59	<0.59	<0.59	<0.59
1,1,2,2-tetrachloroethane	<0.43	<0.43	<0.43	<0.43	<0.43
toluene	<1.0	<1.0	1.9JB	<1.0	<1.0
1,1,2-trichloroethane	<0.57	<0.57	<0.57	<0.57	<0.57
Trichloroethene	<0.29	<0.29	<0.29	<0.29	<0.29
Vinyl Chloride		8.4	3.0J	2.9J	3.0J
Xylenes (total)	<0.85	<0.85	<0.85	<0.85	<0.85

* lab artifact

J estimated result; result is less than reporting limit

B Compound was found in blank and sample.

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range

B Method Blank Contamination

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	UA2	UA2	UA2	UA2	UA2	UA2	UA2	UA2	
Sample Date	10/8/98	10/7/99	10/2/00	10/16/01	9/25/02	7/21/03	10/21/03	11/4/05	11/7/06
Sample Taken by	FC	FC	FC	FC	GEO	GEO	FC	FC	FC
Aroclors									
Acetone	<50	<50	<10	99J	<20	<20	8.9 *	1.9 J *	15 *
Benzene	1310	835	790	370	27	120	56	5.7	8.9
2-Butanone	<50	<50	<5	<100	<20	<20	<5	<5	<5
Chlorobenzene	<5	<5	<1	<20	<5	<5	0.13J	<1	<1
Chloroethane	<10	<10	<2	<40	<10	<10	1.0J	1.2 J	<2
1,1-dichloroethane	34	32	17	13J	7.4	13	12	11	15
1,2-dichloroethene (total)	<10	<10		0.55	12J	<10	<10	0.53J	0.96 JB
1,1-dichloroethene	<5	<5	<1	<20	<5	<5	<1	<1	<1
Ethylbenzene	<5	<5	<1	<20	<5	<5	<1	<1	<1
2-hexanone	<50	<50		<50	<20	<20	<5	<5	<5
1,1,2,2-tetrachloroethane	<5	<5	<1	<20	<5	<5	<1	<1	<1
toluene	<5	<5		1.1	<20	<5	<5	0.43J	<1
1,1,2-trichloroethane	<5	<5	<1	<20	<5	<5	<1	<1	<1
Trichloroethene	<5	<5	<1	8.6J	<5	<5	<1	<1	<1
Vinyl Chloride	<10	<10	<2	10J	<5	<5	1.1J	1.5 J	<2
Xylenes (total)	<15	<15	<1	<60	<10	<10	<3	0.55 JB	<3

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range

B Method Blank Contamination

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	UA2	UA2	UA2	UA2	UA2	UA2	UA2	UA2	UA2
Sample Date	6/5/08	11/13/08	11/13/09	10/21/10	11/3/11	11/9/12	12/3/13	11/13/14	11/4/15
Sample Taken by	SL	SL	SL	SL	SL	SL	SL	SL	SL
Aroclors									
1,4-dioxane									30
Acetone	<2	<2	<2	<2	<2	<6.7	<6.7	<6.7	<6.7
Benzene	3.4	2.3	2.6	3.6	3.3	2.4J	2.5J	2.9J	2.0J
2-Butanone	<5	<5	<5	<5	<5	<0.39	<0.39	<0.39	<0.39
Chlorobenzene	<1	<1	<1	<1	<1	<0.38	<0.38	<0.38	<0.38
Chloroethane	<2	<2	<2	<2	<2	<0.38	<0.38	<0.38	<0.38
1,1-dichloroethane	5.2	4.8	6.1	6.5	5.1	5.6	5.4	6	5.6
1,2-dichloroethene (total)	<2	2.7B	1.3J	2.8	2.3	3.4J	2.6J	2.3J	2.3J
1,1-dichloroethene	<1	<1	<1	<1	<1	<0.37	<0.37	<0.37	<0.37
Ethylbenzene	<1	<1	<1	<1	<1	<0.30	<0.30	<0.30	<0.30
2-hexanone	<5	<5	<5	<5	<5	<0.59	<0.59	<0.59	<0.59
1,1,2,2-tetrachloroethane	<1	<1	<1	<1	<1	<0.43	<0.43	<0.43	<0.43
toluene	<1	0.047J	<1	<1	<1	<1.0	<1.0	<1.0	<1.0
1,1,2-trichloroethane	<1	<1	<1	<1	<1	<0.57	<0.57	<0.57	<0.57
Trichloroethene	<1	<1	<1	<1	<1	<0.29	<0.29	0.39J	<0.09
Vinyl Chloride	2.4	1.8J	2.1	4.5	3.4	1.4J	3.2J	4.4J	2.3J
Xylenes (total)	<3	<3	<3	<3	<3	<0.85	<0.85	<0.85	<0.85

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

B Method Blank Contamination

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location								
Sample Date								
Sample Taken by								
Aroclors								
1,4-dioxane								
Acetone								
Benzene								
2-Butanone								
Chlorobenzene								
Chloroethane								
1,1-dichloroethane								
1,2-dichloroethene (total)								
1,1-dichloroethene								
Ethylbenzene								
2-hexanone								
1,1,2,2-tetrachloroethane								
toluene								
1,1,2-trichloroethane								
Trichloroethene								
Vinyl Chloride								
Xylenes (total)								

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range

B Method Blank Contamination

Well Wizard apparatus never worked again following the 1992 Black and Veach sampling.

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	UA3	UA3						
Sample Date	6/18/98	6/10/99	6/16/00	6/13/01	6/6/02	9/25/02	5/27/03	7/1/03
Sample Taken by	FC	FC	FC	FC	FC	GEO	FC	GEO
Aroclors						<1	<1	<1
Acetone	<50	<50	<10	<1	6.1 *	<20	**	<20
Benzene	<5	<5	<1	<1	<1	<5	<5	3
2-Butanone	<50	<50	<5	<5	<5	<20	<20	<5
Chlorobenzene	<5	<5	<1	<1	<1	<5	<5	72E
Chloroethane	<10	<10	<2	<2	<2	<10	<10	<2
1,1-dichloroethane	<5	<5	<1	0.23J	0.37J	<5	<5	2.1
1,2-dichloroethene (total)	<10	<10	<1		0.66	0.82J	<10	508E
1,1-dichloroethene	<5	<5	<1	<1	<1	<5	<5	6.2
Ethylbenzene	<5	<5	<1	<1	<1	<5	<5	<1
2-hexanone	<50	<50	not run	not run	<5	<20	<20	<5
1,1,2,2-tetrachloroethane	<5	<5	<1	<1	<1	<5	<5	<1
toluene	<5	<5	<1	<1	<1	<5	<5	1.1
1,1,2-trichloroethane	<5	<5	<1	<1	not run	<5	<5	<1
Trichloroethene	<5	<5	<1	<1	<1	<5	<5	1.5
Vinyl Chloride	<10	<10	<2	1.8J		2.6	<5	<5
Xylenes (total)	<15	<15	<1	<1	<3	<10	<10	<3

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range

B Method Blank Contamination

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	UA3	UA3	UA3	UA3	UA3	UA3	UA3	UA3
Sample Date	6/1/05	5/31/06	6/4/07	6/5/08	6/17/09	5/19/10	6/2/11	6/7/12
Sample Taken by	FC	FC	SL	SL	SL	SL	SL	SL
Aroclors	<1	<1	ND	<1	ND	<1	ND	ND
Acetone	<4	21*		22	2.5	<2	<22	<2
Benzene	<2	<1	<1		5.9	5.5	<2.6	1.7
2-Butanone	<10	<5	<5	<5	<5	<11	<5	<10
Chlorobenzene		11	2.2	13	140-210	81-90	6.7J	16
Chloroethane	<4	<2	<2	<2	<2	<5.8	<2	<4
1,1-dichloroethane	<2	<1		2.2	3.7	4.8	<3	2.6
1,2-dichloroethene (total)	120 B,D		33	1600-1800	990-1800	950-1900	1200	720
1,1-dichloroethene	<2	<1		4.7	3.7	12	8.5J	3.1
Ethylbenzene	<2	<1	<1	<1	<1	<3.4	<1	<2
2-hexanone	<10	<5	<5	<5	<5	<8.2	<5	<10
1,1,2,2-tetrachloroethane	<2	<1	<1	<1	<1	<3.6	<1	<2
toluene	<2		2.6	<1		2	0.76J	<2.6
1,1,2-trichloroethane	<2	<1	<1	<1	<1	<5.4	<1	<2
Trichloroethene	<2	<1	<1		1.1	10	<3.4	.31J
Vinyl Chloride	110 D		34	95-120	330-460	280-430	110	180D
Xylenes (total)	<6	<3	<3		3	0.27J	<5.6	<3
							<6	

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range

B Method Blank Contamination

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	UA3	UA3	UA3	UA3	UA3	UA3 (39")	UA3 (39")	UA3 (39")
Sample Date	6/11/13	6/9/14	6/2/2015	6/1/16	6/6/17	6/4/18		
Sample Taken by	SL	SL	SL	SL	SL	SL		
Aroclors	ND	ND	ND	20	ND	ND		
1,4-dioxane				7.2		1.2	2.4J	
Acetone	<6.7	9.0J	<6.7	<6.7	<6.7	<6.7		
Benzene	3.7J	1.0J	0.87J	0.75J	0.74J	1.1J		
2-Butanone	<0.39	<0.39	<0.39	5.2J	<0.39	<0.39		
Chlorobenzene	72	16	13	8	6.2	6.3		
Chloroethane	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38		
1,1-dichloroethane	3.0J	<0.39	1.5J	1.9J	1.4J	0.89J		
1,2-dichloroethene (total)	730	100	160	250	80	52		
1,1-dichloroethene	6.4	0.57J	1.4J	1.2J	0.46J	<0.37		
Ethylbenzene	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30		
2-hexanone	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59		
1,1,2,2-tetrachloroethane	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43		
toluene	<1.0	<1.0	<1.0	1.7JB	<1.0	<1.0		
1,1,2-trichloroethane	<0.43	<0.57	<0.57	<0.57	<0.57	<0.57		
Trichloroethene	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29		
Vinyl Chloride	230	88	73	60	45	23		
Xylenes (total)	<0.85	<0.85	<0.85	<0.85	<0.85	<0.85		

* lab artifact

J estimated result; result is less than reporting limit

B Compound was found in the blank and sample.

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range

B Method Blank Contamination

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	LA3	LA3	LA3	LA3	LA3	LA3	LA3	LA3	LA3	LA3
Sample Date	10/8/98	10/7/99	11/11/99	11/22/99	10/2/00	10/16/01	9/25/02	9/25/02	7/1/03	10/20/03
Sample Taken by	FC	FC	FC	FC	FC	GEO	GEO	FC	GEO	FC
Aroclors							<1			<1
Acetone	<50	<50	<50	<50	<10	86 *	<20		<20	5.4 *
Benzene	<5	<5	<5	<5	<1	<5	<5		<5	0.34J
2-Butanone	<5	<50	<50	<50	<5	<25	<20		<20	<5
Chlorobenzene	<5	<5	<5	<5		3.9	4.0J	<5		5.2
Chloroethane	<10	<10	<10	<10	<2	<10	<10		<10	<2
1,1-dichloroethane	<5	<5	<5	<5	<1	<5	<5		<5	<1
1,2-dichloroethene (total)	<10		61	14	13	137	99	73		86
1,1-dichloroethene	<5	<5	<5	<5		2.8	2.4J	<5		1.1
Ethylbenzene	<5	<5	<5	<5	<1	<5	<5		<5	<1
2-hexanone	<50	<50	<50	<50		<25	<20		<20	<5
1,1,2,2-tetrachloroethane	<5	<5	<5	<5	<1	<5	<5		<5	<1
toluene	<5	<5	<5	<5	<1	<5	<5		<5	0.32J
1,1,2-trichloroethane	<5	<5	<5	<5	<1	<5	<5		<5	<1
Trichloroethene	<5	<5	<5	<5		3.3	3.7J	<5		1.3
Vinyl Chloride	<10	<10	<10	<10		23	19	15		20
Xylenes (total)	<15	<15	<15	<15	<1	<15	<10		<10	<3

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range

B Method Blank Contamination

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	LA3	LA3	LA3	LA3	LA3	LA3	LA3	LA3	LA3	LA3
Sample Date	11/16/04	11/4/05	11/6/06	11/20/07	11/17/08	11/12/09	10/20/10	11/3/11	11/9/12	12/3/13
Sample Taken by	FC	FC	FC	SL	SL	SL	SL	SL	SL	SL
Aroclors	<1	<1	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	<2	1.8 J*	14 *	38*	2.8	<2	<2	<2	<6.7	<6.7
Benzene	<1	<1	<1	<1	0.15J	0.094J	0.35J	.096J	<0.25	<0.25
2-Butanone	<5	<5	<5	<5	<5	<5	<5	<5	<0.39	<0.39
Chlorobenzene	<1	<1	<1	<1	3.3	1	7.8	1.9	1.8J	1.4J
Chloroethane	<2	<2	<2	<2	<2	<2	<2	<2	<0.38	<0.38
1,1-dichloroethane	<1	<1	<1	<1	<1	<1	.21J	<1	<0.39	<0.39
1,2-dichloroethene (total)	4.4	7.2 BJ	240	19	35B	14	71D	8.8	50	9.6J
1,1-dichloroethene	<1	<1	1.6	<1	0.28J	<1	.84J	.091J	<0.37	<0.39
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<0.30	<0.30
2-hexanone	<5	<5	<5	<5	<5	<5	<5	<5	<0.59	<0.59
1,1,2,2-tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<0.43	<0.43
toluene	<1	0.51 J	<1	<1	0.29J	0.26J	.33J	.12J	<1.0	<1.0
1,1,2-trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<0.57	<0.57
Trichloroethene	<1	0.32 JB	2.2	<1	0.32J	0.47J	.36J	<1	<0.29	<0.29
Vinyl Chloride	2	1.3 J	18	2.8	8.5	4	27D	2.3	4.7J	2.3J
Xylenes (total)	<3	0.56 JB	<3	<3	<3	<3	<3	<3	<0.85	<0.85

* lab artifact

J estimated result; result is less than reporting limit

B method blank contamination

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	LA3	LA3	LA3	LA3 (56')				
Sample Date	10/29/14	11/4/15	11/9/16	11/9/17	11/7/18			
Sample Taken by	SL	SL	SL	SL	SL			
Aroclors	ND	ND	ND	ND	ND			
1,4-dioxane	<5	<5	<1.2	4.7J	<0.25			
Acetone	<6.7	<6.7	<6.7	<6.7	<3.2			
Benzene	<0.25	<0.25	<0.25	<0.25	<0.33			
2-Butanone	<0.39	<0.39	<0.39	<0.39	13J			
Chlorobenzene	4.3J	1.4J	6.5	1.0J	3.5J			
Chloroethane	<0.38	<0.38	<0.38	<0.38	<1			
1,1-dichloroethane	<0.39	<0.39	<0.39	<0.39	<0.56			
1,2-dichloroethene (total)	18	3.2J	31	7.7J	14			
1,1-dichloroethene	<0.37	<0.37	<0.37	<0.37	<0.71			
Ethylbenzene	<0.30	<0.30	<0.30	<0.30	<0.44			
2-hexanone	<0.59	<0.59	<0.59	<0.59	<3.6			
1,1,2,2-tetrachloroethane	<0.43	<0.43	<0.43	<0.43	<2			
toluene	<1.0	<1.0	<1.0	<1.0	<3.6			
1,1,2-trichloroethane	<0.57	<0.57	<0.57	<0.57	<0.77			
Trichloroethene	<0.29	<0.29	<0.29	<0.29	<0.58			
Vinyl Chloride	11	2.6J	11	2.7J	9			
Xylenes (total)	<0.85	<0.85	<0.85	<0.85	<1.4			

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range

B Method Blank Contamination

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	LA4	LA4	LA4	LA4	LA4	LA4	LA4	LA4	LA4	LA4
Sample Date	10/8/98	10/23/98	10/7/99	11/11/99	11/22/99	10/16/01	10/2/00	9/24/02	7/1/03	10/20/03
Sample Taken by	FC	FC	FC	FC	FC	FC	FC	GEO	GEO	FC
Aroclors										
Acetone	<50	<50	<50	<50	<20	11 *	<10	<20	<20	6.1 *
Benzene	<5	<5	26	<5	<5	<1	<1	<5	<5	0.076J
2-Butanone	<50	<50	<50	<50	<20	<5	<5	<20	<20	<5
Chlorobenzene	<5	<5	<5	<5	<5	<1	<1	<5	<5	<1
Chloroethane	<10	<10	<10	<10	<10	<2	<2	<10	<10	<2
1,1-dichloroethane	<5	<5	<5	<5	<5	<1	<1	<5	<5	<1
1,2-dichloroethene (total)	102	<10	<10	<10	<5	0.95J	<1	<10	<10	<2
1,1-dichloroethene	<5	<5	<5	<5	<5	<1	<1	<5	<5	<1
Ethylbenzene	<5	<5	<5	<5	<5	<1	<1	<5	<5	<1
2-hexanone	<50	<50	<50	<50	<	<5	not run	<20	<20	<5
1,1,2,2-tetrachloroethane	<5	<5	<5	<5	<5	<1	<1	<5	<5	<1
toluene	69	<5	<5	<5	<5	<1	<1	<5	<5	0.54J
1,1,2-trichloroethane	<5	<5	<5	<5	<5	<1	<1	<5	<5	<1
Trichloroethene	<5	<5	<5	<5	<5	0.31J	<1	<5	<5	<1
Vinyl Chloride	21	<10	<10	<10	<10	<2	<2	<5	<5	<2
Xylenes (total)	<15	<15	<15	<15	<5	<3	<1	<10	<10	<3

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range

B Method Blank Contamination

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	LA4	LA4	LA4	LA4	LA4	LA4	LA4	LA4	LA4 (73')	LA4 (73')
Sample Date	11/17/05	11/7/06	6/8/07	6/5/2008	11/13/08	11/13/09	10/21/10	11/9/17	11/7/18	
Sample Taken by	FC	FC	SL	SL	SL	SL	SL	SL		
1,4 dioxane								1.4J	0.29J	
Acetone	2.7 J*	<2	11	2.5	<2	<2	<2	<6.7	<3.2	
Benzene	<1	<1	<1	<1	0.20J	<1	<1	<0.25	<0.33	
2-Butanone	<5	<5	<5	<5	<5	<5	<5	<0.39	<1.5	
Chlorobenzene	<1	<1	<1	<1	<1	<1	<1	<0.38	<0.5	
Chloroethane	<2	<2	<2	<2	<2	<2	<2	<0.38	<1	
1,1-dichloroethane	<1	<1	<1	<1	<1	<1	<1	<0.39	<0.56	
1,2-dichloroethene (total)	<1	<1	<2	<2	0.38JB	<2	<2	<0.24	<0.54	
1,1-dichloroethene	<1	<1	<1	<1	<1	<1	<1	<0.37	<0.71	
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1	<0.30	<0.44	
2-hexanone	<5	<5	<5	<5	<5	<5	<5	<0.59	<3.6	
1,1,2,2-tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<0.43	<2	
toluene	0.25 J	<1	<1	<1		5.8	<1	<1	<1.0	<3.6
1,1,2-trichloroethane	<1	<1	<1	<1	<1	<1	<1	<0.57	<0.77	
Trichloroethene	<1	<1	<1	<1	<1	<1	<1	<0.29	<0.58	
Vinyl Chloride	<2	<2	<2	<2	<2	<2	<2	<0.43	<1.9	
Xylenes (total)	<3	<3	<3	<3	<3	<3	<3	<0.85	<1.4	

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range

B Method Blank Contamination

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	MW4	MW4	MW4	MW4	MW4	MW4	MW4	MW4	MW4
Sample Date	6/9/99	6/15/00	6/12/01	6/6/02	9/26/02	7/1/03	6/2/04	6/1/05	6/1/06
Sample Taken by	FC	FC	FC	FC	GEO	GEO	FC	FC	FC
Aroclors									
Acetone	<50	<10		11	5.7*	<20	<20	<2	<2
Benzene	117		24	0.87J	0.70J		7.6	<5	0.85J
2-Butanone	<50	<5	<5	<5		<20	<20	<5	<5
Chlorobenzene	<5	<1	<1	<1		<5	<5	<1	<1
Chloroethane	<10	<2	<2	<2		<10	<10	<2	<2
1,1-dichloroethane	7	4.2	1.4	3.7	<5	<5		1.7	<1
1,2-dichloroethene (total)	<10		0.71	0.53	<2	<10	<10	<1	<2
1,1-dichloroethene	<5	<1	<1	<1		<5	<5	<1	<1
Ethylbenzene	<5	<1	<1	<1		<5	<5	<1	<1
2-hexanone	<50			<5		<20	<20	<5	<5
1,1,2,2-tetrachloroethane	<5	<1	<1	<1		<5	<5	<1	<1
toluene	<5	<1	<1	<1		<5	<5	<1	<1
1,1,2-trichloroethane	<5	<1	<1		not run	<5	<5	<1	<1
Trichloroethene	<5	<1	<1	<1		<5	<5	<1	<1
Vinyl Chloride	<10	1.4J	0.27J	0.69J		<5	<5	2.9	<2
Xylenes (total)	<15	<1	<1	<3		<10	<10	<3	<3

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range

B Method Blank Contamination

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	MW4								
Sample Date	6/4/07	6/5/08	6/18/09	10/21/10	6/2/11	6/6/12	6/12/13	6/19/14	6/3/15
Sample Taken by	SL								
Aroclors									
Acetone	18 J	<2	1.0J	<2	<2	1.7J	<6.7	<6.7	<6.7
Benzene	<10	<1	<1	0.63J	.10J	0.20J	<0.25	<0.25	0.61J
2-Butanone	<50	<5	<5	<5	<5	<5	<0.39	<0.39	<0.39
Chlorobenzene	<10	<1	<2	<1	<1	<1	<0.38	<0.38	<0.38
Chloroethane	<20	<2	<2	<2	<2	<2	<0.38	<0.38	<0.38
1,1-dichloroethane	<10		1.4	0.22J		1.2	.17J	0.40J	<0.39
1,2-dichloroethene (total)	<20	<2	<2	0.30J	<2	0.19J	<0.24	<0.24	0.41J
1,1-dichloroethene	<10	<1	<1	<1	<1	<1	<0.37	<0.37	<0.37
Ethylbenzene	<10	<1	<1	<1	<1	<1	<0.30	<0.30	<0.30
2-hexanone	<50	<5	<5	<5	<5	<5	<0.59	<0.59	<0.59
1,1,2,2-tetrachloroethane	<10	<1	<1	<1	<1	<1	<0.43	<0.43	<0.43
toluene	<10	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0
1,1,2-trichloroethane	<10	<1	<1	<1	<1	<1	>0.57	<0.57	<0.57
Trichloroethene	<10	<1	<1	<1	<1	<1	<0.29	<0.29	<0.29
Vinyl Chloride	<20		3.1	<2		4.5	.31J	0.97J	<0.43
Xylenes (total)	<30	<3	<3	<3	<3	<3	<0.85	<0.85	<0.85

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range

B Method Blank Contamination

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	MW4	MW4	MW4 (41')
Sample Date	6/2/16	6/7/17	6/4/18
Sample Taken by	SL	SL	SL
Aroclors			
1,4-dioxane	25	23	<1.2
Acetone	<6.7	<0.67	<6.7
Benzene	3.3J	3.4J	1.5J
2-Butanone	4.4J	<0.39	<0.39
Chlorobenzene	<0.38	<0.38	<0.38
Chloroethane	<0.38	<0.38	<0.38
1,1-dichloroethane	2.3J	2.1J	<0.39
1,2-dichloroethene (total)	3.8J	3.4J	1.1J
1,1-dichloroethene	<0.37	<0.37	<0.37
Ethylbenzene	<0.30	<0.30	<0.30
2-hexanone	<0.59	<0.59	<0.59
1,1,2,2-tetrachloroethane	<0.43	<0.43	<0.43
toluene	2.1 JB	<1.0	<1.0
1,1,2-trichloroethane	<0.57	<0.57	<0.57
Trichloroethene	<0.29	<0.29	<0.29
Vinyl Chloride	10	7.6	2.5J
Xylenes (total)	<0.85	<0.85	<0.85

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range

B Compound was found in the blank and sample.

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	UA4	UA4	UA4	UA4	UA4	UA4	UA4
Sample Date	7/15/98	6/10/99	6/16/00	6/13/01	6/6/02	7/1/03	6/2/04
Sample Taken by	FC	FC	FC	FC	FC	GEO	FC
Aroclors							
Acetone	<50	<50	<10	<10	3.9*	<20	<2
Benzene	<5	<5	0.75J	<1	<1	<5	<1
2-Butanone	<50	<50	<5	<5	<5	<20	<5
Chlorobenzene	<5	<5	<1	<1	<1	<5	<1
Chloroethane	<10	<10	<2	<2	<2	<10	<2
1,1-dichloroethane	<5	<5	0.59J	0.25J	<1	<5	<1
1,2-dichloroethene (total)	<10	<10	<1	<1	0.26J	<10	<2
1,1-dichloroethene	<5	<5	<1	<1	<1	<5	<1
Ethylbenzene	<5	<5	<1	<1	<1	<5	<1
2-hexanone	<50	<50	not run	<5	<5	<20	<5
1,1,2,2-tetrachloroethane	<5	<5	<1	not run	<1	<5	<1
toluene	<5	<5	<1	<1	<1	<5	0.29J
1,1,2-trichloroethane	<5	<5	<1	<1	not run	<5	<1
Trichloroethene	<5	<5	<1	<1	0.68J	<5	<1
Vinyl Chloride	<10	<10	<2	<2	<2	<5	<2
Xylenes (total)	<15	<15	<1	<1	<3	<10	<3

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range

B Method Blank Contamination

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	UA4	UA4	UA4	UA4	UA4	UA4	UA4
Sample Date	6/1/05	5/31/06		6/5/2008	6/18/2009	5/19/2010	6/2/2011
Sample Taken by	FC	FC		SL	SL	SL	SL
Aroclors							
Acetone	<2	<2		<2	<2	<1.1	<2
Benzene	<1	<1		<1	<1	<1	<1
2-Butanone	<5	<5		<5	<5	<0.57	<5
Chlorobenzene	<1	<1		<1	<1	<1	<1
Chloroethane	<2	<2		<2	<2	<1	<2
1,1-dichloroethane	<1	<1		<1	0.098J	<1	<1
1,2-dichloroethene (total)	<1	<1		<1	1.5J	<2	<2
1,1-dichloroethene	<1	<1		<1	<1	<1	<1
Ethylbenzene	<1	<1		<1	<1	<1	<1
2-hexanone	<5	<5		<5	<5	<0.41	<5
1,1,2,2-tetrachloroethane	<1	<1		<1	<1	<1	<1
toluene	<1	<1		<1	<1	<1	<1
1,1,2-trichloroethane	<1	<1		<1	,1	<1	<1
Trichloroethene	<1	<1		<1	0.28J	<1	<1
Vinyl Chloride	<2	<2		<2	<2	<1	<2
Xylenes (total)	<3	<3		<3	<3	<2	<3

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range.

B Compound was found in the blank sample.

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	UA4	UA4	UA4	UA4	UA4	UA4	UA4 (24')
Sample Date	6/6/12	6/12/13	6/9/2014	6/2/2015	6/2/2016	6/7/2017	6/4/2018
Sample Taken by	SL	SL	SL	SL	SL	SL	SL
Aroclors							
1,4-dioxane					7.3	<1.2	<1.2
Acetone	1.2J	<6.7	7.1J	<6.7	<6.7	<6.7	<6.7
Benzene	0.52J	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
2-Butanone	<5	<0.39	<0.39	<0.39	4.0J	<0.39	<0.39
Chlorobenzene	<1	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
Chloroethane	<2	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
1,1-dichloroethane	0.073J	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39
1,2-dichloroethene (total)	<1	<0.24	<.24	<0.24	1.4J	<0.24	<0.24
1,1-dichloroethene	<1	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37
Ethylbenzene	<1	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
2-hexanone	<5	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59
1,1,2,2-tetrachloroethane	<1	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43
toluene	<1	<1.0	<1.0	<1.0	1.9JB	<1.0	<1.0
1,1,2-trichloroethane	<1	<0.57	<0.57	<0.57	<0.57	<0.57	<0.57
Trichloroethene	<1	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29
Vinyl Chloride	0.20J	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43
Xylenes (total)	<3	<0.85	<0.85	<0.85	<0.85	<0.85	<0.85

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range.

B Compound was found in the blank sample.

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	EP 4	EP 4	EP 4	EP 5	EP 5	EP 5	EP 5	EP 5	EP 4
Sample Date	6/18/98	6/10/99	10/3/00	6/14/01	10/3/01	6/6/02	5/26/03	6/3/04	6/2/2005
Sample Taken by	FC	FC	FC	FC	FC	FC	FC	FC	FC
Aroclors									
Acetone	<50	<50	<10	<10	<10	<10	<2	<2	2.2 *
Benzene	<5	<5	<1	<1	<1	<1	<1	<1	<1
2-Butanone	<5	<50	<5	<5	<5	<5	<5	<5	<5
Chlorobenzene	<5	<5	<1	<1	<1	<1	<1	<1	<1
Chloroethane	<10	<10	<2	<2	<2	<2	<2	<2	<2
1,1-dichloroethane	<5	<5	<1	<1	<1	<1	<1	<1	<1
1,2-dichloroethene (total)	<10	<10	0.40J	<1	<0.5	<1	<1	<1	<1
1,1-dichloroethene	<5	<5	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	<5	<5	<1	<1	<1	<1	<1	<1	<1
2-hexanone	<50	<50	not run	not run		<5	<5	<5	<5
1,1,2,2-tetrachloroethane	<5	<5	<1	<1	<1	<1	<1	<1	<1
toluene	<5	<5	<1	<1	<1	<1	<1	<1	<1
1,1,2-trichloroethane	<5	<5	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	<5	<5	<1	<1	<1	<1	<1	<1	<1
Vinyl Chloride	<10	<10	<2	<2	<2	<2	<2	<2	<2
Xylenes (total)	<15	<15	<1	<1	<1	<1	<1	<1	<3

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range

B Method Blank Contamination

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	EP?	EP?	EP?	EP?	EP?	EP?	EP?	EP?
Sample Date	Note: Per phone conversation with Mr. Steve Auchterlonie on 5/31/06,							
Sample Taken by	we will not be required to sample the city wells any longer.							
Aroclors								
Acetone								
Benzene								
2-Butanone								
Chlorobenzene								
Chloroethane								
1,1-dichloroethane								
1,2-dichloroethene (total)								
1,1-dichloroethene								
Ethylbenzene								
2-hexanone								
1,1,2,2-tetrachloroethane								
toluene								
1,1,2-trichloroethane								
Trichloroethene								
Vinyl Chloride								
Xylenes (total)								

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range

B Method Blank Contamination

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	LA5	LA5	LA5	LA5	LA5	LA5	LA5	LA5	LA5	LA5
Sample Date	6/19/98	6/9/99	6/15/00	6/13/01	6/6/02	9/26/02	7/2/03	6/2/04	6/1/05	6/1/06
Sample Taken by	FC	FC	FC	FC	FC	GEO	GEO	FC	FC	FC
Aroclors										
Acetone	<50	<50	<10			<20	<20	<2	<2	<10
Benzene	<5	<5	<1			<5	<5	<1	<1	<1
2-Butanone	<50	<50	<5			<20	<20	<5	<5	<5
Chlorobenzene	<5	<5	<1			<5	<5	<1	<1	<1
Chloroethane	<10	<10	<2			<10	<10	<2	<2	<2
1,1-dichloroethane	<5	<5	<1			<5	<5	<1	<1	<1
1,2-dichloroethene (total)	<10	<10	<1			<10	<10	<2	<2	<2
1,1-dichloroethene	<5	<5	<1			<5	<5	<1	<1	<1
Ethylbenzene	<5	<5	<1			<5	<5	<1	<5	<5
2-hexanone	<50	<50	not run			<20	<20	<5	<5	<5
1,1,2,2-tetrachloroethane	<5	<5	<1			<5	<5	<1	<1	<1
toluene	<5	<5	<1			<5	<5	<1	<1	<1
1,1,2-trichloroethane	<5	<5	<1			<5	<5	<1	<1	<1
Trichloroethene	<5	<5	<1			<5	<5	<1	<1	<1
Vinyl Chloride	<10	<10	<2			<5	<5	<2	<2	<2
Xylenes (total)	<15	<15	<1			<10	<10	<3	<3	<3

Ants have plugged well; no sample

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range

B Method Blank Contamination

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	LA5	LA5	LA5	LA5	LA5	LA5	LA5	LA5	LA5	LA5
Sample Date	6/8/07	6/5/08	6/18/09	10/21/10	6/2/11	6/6/12	6/12/13	6/19/14	6/2/15	6/3/16
Sample Taken by	SL	SL	SL	SL	SL	SL	SL	SL	SL	SL
Aroclors										
1,4-dioxane										<1.2
Acetone	26	<2	<2	<2	<2	0.75J	<6.7	<6.7	10J	<6.7
Benzene	<1	<1	0.22J	0.19J	.095J	0.20J	<0.25	<0.25	<0.25	<0.25
2-Butanone	<5	<5	<5	<5	<5	<5	<0.39	<0.39	<0.39	3.2J
Chlorobenzene	<1	<1	<1	<1	<1	<1	<0.38	<0.38	<0.38	<0.38
Chloroethane	<2	<2	<2	<2	<2	<2	<0.38	<0.38	<0.38	<0.38
1,1-dichloroethane	<1	<1	<1	<1	<1	0.079J	<0.39	<0.39	<0.39	<0.39
1,2-dichloroethene (total)	<2	<2	<2	<2	<2	<2	<0.24	<0.24	<0.24	0.34J
1,1-dichloroethene	<1	<1	<1	<1	<1	<1	<0.37	<0.37	<0.37	<0.37
Ethylbenzene	<1	<1	<1	<1	<1	<1	<0.30	<0.30	<0.30	<0.30
2-hexanone	<5	<5	<5	<5	<5	<5	<0.59	<0.59	<0.59	<0.59
1,1,2,2-tetrachloroethane	<1	<1	<1	<1	<1	<1	<0.43	<0.43	<0.43	<0.43
toluene	<1	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	2.1JB
1,1,2-trichloroethane	<1	<1	<1	<1	<1	<1	<0.29	<0.57	<0.57	<0.57
Trichloroethene	<1	<1	<1	<1	<1	<1	<0.29	<0.29	<0.29	<0.29
Vinyl Chloride	<2	<2	<2	<2	<2	<2	<0.43	<0.43	<0.43	<0.43
Xylenes (total)	<3	<3	<3	<3	<3	<3	<0.85	<0.85	<0.85	<0.85

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range

B Method Blank Contamination

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	LA5	LA5 (74')
Sample Date	6/7/17	6/4/18
Sample Taken by	SL	SL
Aroclors		
1,4-dioxane	<1.2	<1.2
Acetone	<6.7	<6.7
Benzene	<0.25	<0.25
2-Butanone	<0.39	<0.39
Chlorobenzene	<0.38	<0.38
Chloroethane	<0.38	<0.38
1,1-dichloroethane	<0.39	<0.39
1,2-dichloroethene (total)	<0.24	<0.24
1,1-dichloroethene	<0.37	<0.37
Ethylbenzene	<0.30	<0.30
2-hexanone	<0.59	<0.59
1,1,2,2-tetrachloroethane	<0.43	<0.43
toluene	>1.0	>1.0
1,1,2-trichloroethane	>0.57	>0.57
Trichloroethene	<.29	<.29
Vinyl Chloride	<0.43	<0.43
Xylenes (total)	<0.85	<0.85

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range

B Method Blank Contamination

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	MW5							
Sample Date	6/18/98	6/10/99	6/16/00	6/15/01	6/6/02	11/12/2008	6/17/2009	11/12/2009
Sample Taken by	FC	FC	FC	FC	FC	SL	SL	SL
Aroclors								
Acetone	<50	<50	<10	<2500	16 *	260-340	<2	<2
Benzene	<5	<5	25	<250	15	1.1	3.3	0.19J
2-Butanone	<50	<50	<5	<1200	<5	<5	<5	<5
Chlorobenzene	<5	<5	37	<250	4.9	<1	4	<1
Chloroethane	<10	<10	<2	<500	<2	<2	<2	<2
1,1-dichloroethane	<5	<5	45	<250	12	0.51J	7.3	0.32J
1,2-dichloroethene (total)	1000	830	1222	2600	4200	691-1300B	520-900	140-170
1,1-dichloroethene	<5	<5	62	<250	12	4.1	5.4	<1
Ethylbenzene	<5	<5	<1	<250	<1	<1	<1	<1
2-hexanone	<50	<50	not run		<5	<5	<5	<5
1,1,2,2-tetrachloroethane	<5	<5	<1	<250	<1	<1	<1	<1
toluene	<5	<5	0.44	<250	0.26J	1.9	0.098	<1
1,1,2-trichloroethane	<5	<5	<1	<250	not run	<1	<1	<1
Trichloroethene	<5	<5	30	<250	0.34J	350-460	66-78	3.3
Vinyl Chloride	385	322	720	1200	2100	130	170-210	36
Xylenes (total)	<15	<15	<1	<250	<3	<3	<3	<3

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range

B Method Blank Contamination

Note: MW5 was damaged during grading operations in late '02; we can get water levels, but the 2" PVC is

damaged to where the bailer will not drop into the well.

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	MW5	MW5	MW5	MW5	MW5	MW5	MW5	MW5
Sample Date	5/19/10	6/3/11	6/7/12	6/11/13	6/9/14	6/3/2015	6/3/2016	6/6/2017
Sample Taken by	SL	SL	SL	SL	SL	SL	SL	SL
1,4-dioxane							<1.2	3.3
Acetone	<4.4	<2		12	<6.7	9.8J	7.3J	10J
Benzene	<4	.33J	0.31J	0.71J	0.44J	0.34J	<0.25	<0.25
2-Butanone	<2.3	<5	<5	<0.39	<0.39	<0.39	5.9J	<0.39
Chlorobenzene	<4	<1	<1	<0.38	<0.38	<0.38	<0.38	<0.38
Chloroethane	<4	<2	<2	<0.38	<0.38	<0.38	<0.38	<0.38
1,1-dichloroethane	<4	<1	<1	<0.39	<0.39	<0.39	<0.39	<0.39
1,2-dichloroethene (total)	240	240D	210D	320	160	160	120	88
1,1-dichloroethene	<4	.4J	0.35J	0.90J	<0.37	<0.37	<0.37	<0.37
Ethylbenzene	<4	<1	<1	<0.30	<0.30	<0.30	<0.30	<0.30
2-hexanone	<4	<5	<5	<0.59	<0.59	<0.59	<0.59	<0.59
1,1,2,2-tetrachloroethane	<4	<1	<1	<0.43	>0.43	<0.43	<0.43	<0.43
toluene	<4	<1	<1	<1.0	<1.0	<1.0	2.3JB	<1.0
1,1,2-trichloroethane	<4	<1	<1	<0.57	<0.57	<0.57	<0.57	<0.57
Trichloroethene		<1	<1	<0.29	>0.29	<0.29	<0.29	<0.29
Vinyl Chloride		51D	64D	130	70	57	45	38
Xylenes (total)		<3	<3	<0.85	<0.85	<0.85	<0.85	<0.85

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	MW5 (36')							
Sample Date	6/5/18							
Sample Taken by	SL							
1,4-dioxane	12							
Acetone	<6.7							
Benzene	0.98J							
2-Butanone	<0.39							
Chlorobenzene	<0.38							
Chloroethane	<0.38							
1,1-dichloroethane	<0.39							
1,2-dichloroethene (total)	150							
1,1-dichloroethene	0.53J							
Ethylbenzene	<0.30							
2-hexanone	<0.59							
1,1,2,2-tetrachloroethane	<0.43							
toluene	<1.0							
1,1,2-trichloroethane	<0.57							
Trichloroethene	3.2J							
Vinyl Chloride	79							
Xylenes (total)	<0.85							

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	MW5B	MW5B	MW5B	MW5B	MW5B	MW5B	MW5B
Sample Date	11/12/08	6/17/09	11/12/09	5/19/10	6/3/11	6/7/12	6/11/13
Sample Taken by	SL	SL	SL	SL	SL	SL	SL
Acetone	640-660	<2	<2	<1.1	<2	1.6J	<6.7
Benzene	<1	<1	<1	<1	<1	<1	<0.25
2-Butanone	<5	<5	<5	<0.57	<5	<5	<0.39
Chlorobenzene	<1	<1	<1	<1	<1	<1	<0.38
Chloroethane	<2	<2	<2	<1	<2	<2	<0.38
1,1-dichloroethane	<1	<1	<1	<1	<1	<1	<0.39
1,2-dichloroethene (total)	0.17J	<2	<2	<2	<2	<2	0.74J
1,1-dichloroethene	<1	<1	<1	<1	<1	<1	<0.37
Ethylbenzene	<1	<1	<1	<1	<1	<1	<0.30
2-hexanone	<5	<5	<5	<0.41	<5	<5	<0.59
1,1,2,2-tetrachloroethane	<1	<1	<1	<1	<1	<1	<0.43
toluene	6	<1	<1	<1	<1	<1	<1.0
1,1,2-trichloroethane	<1	<1	<1	<1	<1	<1	<0.57
Trichloroethene	<1	<1	<1	<1	<1	<1	<0.29
Vinyl Chloride	<2	<2	<2	<1	<2	<2	<0.43
Xylenes (total)	<3	<3	<3	<2	<3	<3	<0.85

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range

B Method Blank Contamination

Note: Per Steve Auchterlonie/Steve Burian conversation in April 2003 during excavation of biotreat area -

we are no longer required to sample UA12 since EW1 adequately characterizes the water quality in this area.

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	MW5B	MW5B	MW5B	MW5B	MW5B (85')
Sample Date	6/9/14	6/3/15	6/3/16	6/6/17	6/5/18
Sample Taken by	SL	SL	SL	SL	SL
1,4-dioxane			<1.2	<1.2	<1.2
Acetone	15J	<6.7	<6.7	<6.7	<6.7
Benzene	<0.25	<0.25	<0.25	<0.25	<0.25
2-Butanone	<0.39	<0.39	2.9J	<0.39	<0.39
Chlorobenzene	<0.38	<0.38	<0.38	<0.38	<0.38
Chloroethane	<0.38	<0.38	<0.38	<0.38	<0.38
1,1-dichloroethane	<0.39	<0.39	<0.39	<0.39	<0.39
1,2-dichloroethene (total)	<0.24	<0.24	0.24J	<0.24	<0.24
1,1-dichloroethene	<0.37	<0.37	<0.37	<0.37	<0.37
Ethylbenzene	<0.30	<0.30	<0.30	<0.30	<0.30
2-hexanone	<0.59	<0.59	<0.59	<0.59	<0.59
1,1,2,2-tetrachloroethane	<0.43	<0.43	<0.43	<0.43	<0.43
toluene	<1.0	<1.0	1.9JB	<1.0	<1.0
1,1,2-trichloroethane	<0.57	<0.57	<0.57	<0.57	<0.57
Trichloroethene	<0.43	<5.0	<0.29	<0.29	<0.29
Vinyl Chloride	<0.43	<0.43	<0.43	<0.43	<0.43
Xylenes (total)	<0.85	<0.85	<0.85	<0.85	<0.85

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range

B Method Blank Contamination

Note: Per Steve Auchterlonie/Steve Burian conversation in April 2003 during excavation of biotreat area -

we are no longer required to sample UA12 since EW1 adequately characterizes the water quality in this area.

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	MW6								
Sample Date	06/18/98	10/08/98	06/10/99	10/07/99	06/16/00	10/03/00	06/14/01	10/15/01	06/06/02
Sample Taken by	FC								
Aroclors	<1	<1	<1	<1	<1	<1	<1	<1	<1
Acetone	78	<50	<50	<50	<10	4.4J	<2500	<10	
Benzene	1830	<5	1600	1790	1000	1500	1600	1500	1700
2-Butanone	<50	<50	330	<50	<5	<5	<1200	<5	<5
Chlorobenzene	<5	<5	<5	<5	3	2.1	<250	2.2	2.6
Chloroethane	29	24	20	10	<2	23	<500	39	27
1,1-dichloroethane	154	128	126	144	150	100-130	<250	110	93
1,2-dichloroethene (total)	3180	3330	2740	3130	3105	2703	3100	2900	3130
1,1-dichloroethene	41	32	23	40	37	24	<250	110	30
Ethylbenzene	6	<5	<5	<5	0.99	1.2	<250	1.2	1.4
2-hexanone	<50	<50	<50	<50	not run	not run		<5	<5
1,1,2,2-tetrachloroethane	<5	<5	<5	<5	<1	<1	<250	<1	<1
toluene	36	9	6	8	5.5	6.2	<250	6.2	6.8
1,1,2-trichloroethane	<5	<5	<5	<5	<1	<1	<250	not run	
Trichloroethene	44	11	7	11	39	9.7	<250	9.8	15
Vinyl Chloride	1810	2140	1860	2310	1700	2000	3400	2100	3700
Xylenes (total)	29	<15	<15	<15		1.5	1<250	1.2J	2

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E Estimated result. Result concentration exceeds the calibration range.

B Method Blank Contamination

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	MW6								
Sample Date	09/26/02	05/27/03	07/01/03	10/21/03	06/02/04	11/10/04	06/01/05	11/04/05	05/31/06
Sample Taken by	FC/GEO	FC	GEO	FC	FC	FC	FC	FC	FC
Aroclors	2.2	1.4	Not run	2.9	<1	<1	<1	1	<1
Acetone	<20		<400	<46 *	<2	5.9	<40	2.4	<200
Benzene	1700		730	690	110E	600 D	590 D	670D	470D
2-Butanone	<20		<400	<120	<5	<5	<100	<5	<5
Chlorobenzene	<5		<100	<25		1.4	2.8	<20	<1
Chloroethane	17		<200	11J	<2		13	<40	7.6
1,1-dichloroethane	110		<100		69	56E	58 D	50 D	53 JD
1,2-dichloroethene (total)	2900		1400	1600	450E	1400 D	1400 D,E	1842 BDJ	1100D
1,1-dichloroethene	23		<100	<25		13	13	<20	15
Ethylbenzene	<5		<100	<25	0.49J	<1	<20	<1	<1
2-hexanone	<20		<400	<120	ND	<5	<100	<5	<5
1,1,2,2-tetrachloroethane	<5		<100	<25	<1	<1	<20	<1	<1
toluene	6.2		<100	4.8J		2.7	3.1	<20	2.5
1,1,2-trichloroethane	<5		<100	<25	<1	<1	<20	<1	<1
Trichloroethene	24		<100	12J		5.8	29	<20	10
Vinyl Chloride	1800		690	700	410E	730 D	580 D	780 D	400D
Xylenes (total)	<10		<200	<75	0.49J	730 D	<60	1.2 JB	<3

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E Estimated result. Result concentration exceeds the calibration range.

B Method Blank Contamination

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	MW6								
Sample Date	11/06/06	06/04/07	11/20/07	06/06/08	11/12/08	06/17/09	11/12/09	05/20/10	10/20/10
Sample Taken by	FC	FC	SL						
Aroclors	ND	1.4	ND	<1	ND	ND	ND	1.6	ND
Acetone	7	17	39	<2	2.6	<2	<2	<18	<2
Benzene	780 D	250-780	310-770	310-900	220-980	330-670	170-310	320	460D
2-Butanone	<5	<5	<5	<5	<5	<5	<5	<9.5	<5
Chlorobenzene	2.5	1.4	1.9	1.8	2.5	1.4	0.48J	<2.5	1.3
Chloroethane	13	3.5	6.8	7.1	5.4	3.8	2.2	<4.8	3.5
1,1-dichloroethane	68 J,D	35-43	73-80	61-74	72-79	42	27	34	38
1,2-dichloroethene (total)	1800 D	1400-2200	1400-1900	1100-2000	950-2700	710-1700	750-760	830	1300D
1,1-dichloroethene	23	6.9	17	15	16	7.6	4	6.0J	6.2
Ethylbenzene	<1	<1	<1	<1	0.51J	<1	<1	<2.8	<1
2-hexanone	<5	<5	<5	<5	<5	<5	<5	<6.8	<5
1,1,2,2-tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<3	<1
toluene	6.5	3	4.5	3.1	4	2.5	1.7	<2.2	2.3
1,1,2-trichloroethane	<1	<1	<1	<1	<1	<1	<1	<4.5	<1
Trichloroethene	16	9.6	4.2	7.6	19	3.7	2.1	<2.8	5.5
Vinyl Chloride	740 D	490-590	740-790	530-1200	750-1100	540-920	430-500	440	970D
Xylenes (total)	<3	<3	<3	<3	<3	0.74J	0.29J	<4.7	0.41J

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E Estimated result. Result concentration exceeds the calibration range.

B Method Blank Contamination

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	MW6							
Sample Date	06/03/11	11/03/11	06/07/12	11/9/2012	06/11/13	11/11/13	6/9/2014	10/30/2014
Sample Taken by	SL							
Aroclors	ND	1.3	1.6	0.93J	ND	1.5	0.52J	ND
Acetone	<2	<100	6.5J,D	<6.7	<6.7	9.4J,B	13J	<6.7
Benzene	390D	190D	0.59J	260	600	770	530	460
2-Butanone	<5	<250	<25	<0.39	<0.39	<0.39	<0.39	<0.39
Chlorobenzene	1.3	<50	<5	1.3J	2.1J	2.1J	4.4J	6.1
Chloroethane	3.1	<100	3.4J,D	<0.38	4.3J	5.4J	1.2J	7.9J
1,1-dichloroethane	37	21J,D	40D	160	<0.39	62	91	110
1,2-dichloroethene (total)	1100D	520D	960D	3300	1400	1200	2700	2900
1,1-dichloroethene	5.8	<50	5.9D	14	<0.37	9.2	14	19
Ethylbenzene	.18J	<50	<5	<0.3	0.43J	0.34J	0.40J	0.53J
2-hexanone	<5	<250	<25	<0.59	<0.59	<0.59	<0.59	<0.59
1,1,2,2-tetrachloroethane	<1	<50	<5	<0.43	<0.43	<0.43	<0.43	<0.57
toluene	1.8	<50	2.0J,D	1.6J	<1.0	3.1J	2.6J	2.7J
1,1,2-trichloroethane	<1	<50	<5	<0.57	<0.57	<0.57	<0.57	<0.57
Trichloroethene	2.4	<50	3.5J,D	5.7	5.1	3.7J	35	38
Vinyl Chloride	420D	210D	500D	370	810	1300	970	800
Xylenes (total)	.33J	<150	<15	<0.85	<0.85	<0.85	<0.85	1.2J

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E Estimated result. Result concentration exceeds the calibration range.

B Method Blank Contamination

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	MW6	MW6	MW6	MW6	MW6	MW6	MW6 (59')	MW6 (59')
Sample Date	6/3/2015	11/05/15	06/01/16	11/9/2016	06/06/17	11/10/17	6/5/2018	11/8/2018
Sample Taken by	SL	SL	SL	SL	SL	SL	SL	SL
Aroclors	ND	2.2	2.3	1.2	ND	ND	1.2	ND
1,4-dioxane		56	35	55	43	48	54	58
Acetone	<6.7	<13	<6.7	<6.7	<6.7	<6.7	12J	<3.2
Benzene	380	320	160	240	2.2J	200	NQ?	220
2-Butanone	<0.39	<0.78	4.5J	<0.39	<0.39	<0.39	<0.39	13J
Chlorobenzene	2.9J	4.9J	2.4J	4.5J	49	6.7	5.8	4.9J
Chloroethane	3.8J	<0.76	1.5J	2.8J	<0.38	5.0J	4.7J	<1
1,1-dichloroethane	46	68	26	52	52	62	46	44
1,2-dichloroethene (total)	1300	1600	780	1300	950	1700	1300	1100
1,1-dichloroethene	5.9	9.7J	2.9J	6.2	4.0J	11	7.4	6.1
Ethylbenzene	<0.30	<0.60	<0.30	<0.30	0.99J	0.48J	0.56J	<0.44
2-hexanone	<0.59	<1.2	<0.59	<0.59	<0.59	<0.59	<0.59	<3.6
1,1,2,2-tetrachloroethane	<0.43	<0.86	<0.43	<0.43	<0.43	<0.43	<0.43	<2
toluene	2.2J	2.0J	2.6JB	1.4J	4.6J	1.7J	1.6J	<3.6
1,1,2-trichloroethane	<0.57	<1.1	<0.43	<0.57	<0.57	<0.57	<0.57	<0.77
Trichloroethene	1.4J		13	6.8	36	<0.29	100	54
Vinyl Chloride		530	600	200	410	130	500	460
Xylenes (total)	<0.85	<1.7	1.4J	1.4J	3.6J	2.6J	1.7J	<1.4

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E Estimated result. Result concentration exceeds the calibration range.

B Compound was found in the blank and sample.

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	TUD	TUD							
Sample Date	6/16/98	6/18/98	6/10/99	10/7/99	6/16/00	10/3/00	6/15/01	10/15/01	6/6/02
Sample Taken by	EMC	FC	FC						
Aroclors		<1	<1	<1	<1	<1	<1	<1	<1
Acetone		<50	<50	<50	<10	4.7J	4.2J	29 *	6.6 *
Benzene	<5	<5	<5	<5	<1	1.5	0.40J	<1	1.1
2-Butanone	<50	<50	<50	<50	<5	<5	<5	<5	<5
Chlorobenzene	<5	<5	<5	<10	<1	<1	<1	<1	<1
Chloroethane	<10	<10	<10	<5	<2	<2	<2	<2	<2
1,1-dichloroethane	<5	<5	<5	<5	<1	<1	<1	<1	<1
1,2-dichloroethene (total)	<10	<10	<10	<10	0.33J	3.6	1	<2	2.9
1,1-dichloroethene	<5	<5	<5	<5	<1	<1	<1	<1	<1
Ethylbenzene	<5	<5	<5	<5	<1	<1	<1	<1	<1
2-hexanone		<50	<50	<50	Not run	Not run	Not run	<5	<5
1,1,2,2-tetrachloroethane		<5	<5	<5	<1	<1	<1	<1	<1
toluene	<5	<5	<5	<5	<1	<1	<1	0.34J	<1
1,1,2-trichloroethane		<5	<5	<5	<1	<1	<1	<1	Not Run
Trichloroethene	<5	<5	<5	<5	<1	<1	<1	<1	<1
Vinyl Chloride	<10	<10	<10	<10	<2	<2	0.26J	<2	<2
Xylenes (total)	<15	<15	<15	<15	<1	<1	<1	<3	<3

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	TUD	TUD	TUD	TUD	TUD	TUD	TUD	TUD
Sample Date	9/26/02	12/31/02	10/21/03	6/2/04	11/10/04	6/1/05	11/4/05	5/31/2006
Sample Taken by	GEO	FC	FC	FC	FC	FC	FC	FC
Aroclors	2.4		5	ND	<1	<1	<1	<1
Acetone	3.5 *	22 *	16 *	2.6 *	15 *	<2	7.1 *	12
Benzene	3.7	0.96J	0.11J	<1	<1	<1	<1	<1
2-Butanone	<5	<5	<5	<5	<5	<5	<5	<5
Chlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	<2	<2	<2	<2	<2	<2	<2	<2
1,1-dichloroethane	<1	<1	0.20J	<1	<1	<1	<1	<1
1,2-dichloroethene (total)	9.9	3.8	4.4	<1	<2	<2	<2	<2
1,1-dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1
2-hexanone	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2,2-tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1
toluene	<1	<1	0.36J	<1	<1	<1	<1	<1
1,1,2-trichloroethane	Not Run	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	<1	<1	0.30J	<1	<1	<1	<1	<1
Vinyl Chloride	0.91J	<2	<2	<2	<2	<2	<2	<2
Xylenes (total)	<3	<3	<3	<3	<3	<3	<3	<3

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range

B Method Blank Contamination

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	TUD	TUD	TUD	TUD	TUD	TUD	TUD	TUD	TUD
Sample Date	11/6/06	6/4/07	11/20/07	6/6/08	11/12/08	6/17/09	11/12/09	5/20/10	10/21/10
Sample Taken by	FC	SL	SL	SL	SL	SL	SL	SL	SL
Aroclors	ND	ND	ND	<1	ND	ND	ND	0.39J	ND
Acetone	12 *	20*	62E*	<2	<2	<2	<2	<1.1	<2
Benzene	<1	<1	<1	<1	9.7	1.2	<1	2.7	4
2-Butanone	<5	<5	<5	<5	<5	<5	<5	<0.57	<5
Chlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	<2	<2	<2	<2	<2	<2	<2	<1	<2
1,1-dichloroethane	<1	<1	<1	<1	1.1	0.13J	<1	0.36J	0.48J
1,2-dichloroethene (total)	<2	<2	2.2	<2	39-44B	6.2	0.23J	9	17
1,1-dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-hexanone	<5	<5	<5	<5	<5	<5	<5	<10	<5
1,1,2,2-tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
toluene	<1	<1	<1	<1	0.067J	<1	<1	<1	0.94J
1,1,2-trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	<1	<1	<1	<1	0.37J	0.30J	<1	<1	<1
Vinyl Chloride	<2	<2	<2	<2	3.8J	0.40J	<2	1.1	2.5
Xylenes (total)	<3	<3	<3	<3	<3	<3	<3	<2	<3

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range.

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location Sample Date Sample Taken by	TUD	TUD	TUD	TUD	TUD	TUD	TUD	TUD
	6/3/11	11/3/11	6/7/12	11/9/12	6/11/13	11/11/13	6/9/2014	10/30/2014
	SL	SL	SL	SL	SL	SL	SL	SL
Aroclors	ND	ND	ND	ND	ND	ND	ND	ND
1,4-dioxane								
Acetone	<2	<2	3.2	11J	<6.7	10 JB	7.0J	<6.7
Benzene	.59J	.62J	0.59J	<0.25	<0.25	<0.25	<0.25	<0.25
2-Butanone	<5	<5	<5	<0.39	<0.39	<0.39	<0.39	<0.39
Chlorobenzene	<1	<2	<1	0.43J	<0.38	<0.38	<0.38	<0.38
Chloroethane	<2	<2	<2	<0.38	<0.38	<0.38	<0.38	<0.38
1,1-dichloroethane	.084J	.071J	<1	<0.39	<0.39	<0.39	<0.39	<0.39
1,2-dichloroethene (total)	2.2	2.1	1.7J	<0.24	0.30J	<0.24	0.76J	<0.24
1,1-dichloroethene	<1	<1	<1	<0.37	<0.37	<0.37	<0.37	<0.37
Ethylbenzene	<1	<1	<1	<0.30	<0.30	<0.30	<0.30	<0.30
2-hexanone	<5	<5	<5	<0.59	<0.59	<0.59	<0.59	<0.59
1,1,2,2-tetrachloroethane	<1	<1	<1	<0.43	<0.43	<0.43	<0.43	<0.43
toluene	<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2-trichloroethane	<1	<1	<1	<0.57	<0.57	<0.57	<0.57	<0.57
Trichloroethene	<1	<1	<1	<0.29	<0.29	<0.29	<0.29	<0.29
Vinyl Chloride	.23J	.2J	0.16J	<0.43	<0.43	<0.43	<0.43	<0.43
Xylenes (total)	<3	<3	<3	<0.85	<0.85	<0.85	<0.85	<0.85

* lab artifact

J Estimated result; result is less than reporting limit.

D Result was obtained by analysis of a dilution.

E Estimated result; result exceeds the calibration range.

B Compound was found in the blank and sample.

OU1 Data provided by Santolubes Manufacturing LLC on September 3, 2019.

Location	TUD	TUD	TUD	TUD	TUD	TUD	TUD	TUD
Sample Date	6/3/15	11/5/15	6/1/16	11/9/16	6/6/17	11/9/17	6/5/18	11/7/18
Sample Taken by	SL	SL	SL	SL	SL	SL	SL	SL
Aroclors	ND	ND	ND	ND	ND	ND	0.44J	ND
1,4-dioxane		46	31	45	42	49	38	52
Acetone	<6.7	<6.7	<6.7	<6.7	<6.7	<6.7	8.7J	<3.2
Benzene	<0.25	0.7J	<0.25	0.58J	2.1J	<0.25	1.9J	<0.33
2-Butanone	<0.39	<0.39	<0.39	0.58J	<0.39	<0.39	<0.39	<1.5
Chlorobenzene	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.5
Chloroethane	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.39	<1
1,1-dichloroethane	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.56
1,2-dichloroethene (total)	<0.24	3.4J	<0.24	4.4J	12	<0.24	7.1J	2.8J
1,1-dichloroethene	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.71
Ethylbenzene	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.44
2-hexanone	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<3.6
1,1,2,2-tetrachloroethane	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<2
toluene	<1.0	<1.0	2.0JB	<1.0	<1.0	<1.0	<1.0	<3.6
1,1,2-trichloroethane	<0.57	<0.57	<0.57	<0.57	<0.57	<0.57	<0.57	<0.77
Trichloroethene	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	<0.58
Vinyl Chloride	<0.43	<0.43	<0.43	<0.43	0.71J	<0.43	0.97J	<1.9
Xylenes (total)	<0.85	<0.85	<0.85	<0.85	<0.85	<0.85	<0.85	<1.4

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range.

B Compound was found in the blank sample.

OU1 Data provided by SantoLubes Manufacturing LLC on September 3, 2019.

Location	UA12						
Sample Date	6/18/98	10/8/98	6/10/99	6/16/00	6/13/01	6/6/02	9/26/02
Sample Taken by	FC	FC	FC	FC	FC	FC	GE0
Aroclors	2	5	12	14	21	NOT RUN	NOT RUN
Acetone	63	<50	<50	<10	<25000	<2	24-artifact?
Benzene	193	150	156	190	<2500	63	96
2-Butanone	<50	11800	16200	<5	<12,000	<5	<20
Chlorobenzene	394	497	344	490	<2500	140	>770 but <2000
Chloroethane	55	38	22	90	<5000	24	85
1,1-dichloroethane	2480	588	4850	730	<2500	4600	10000
1,2-dichloroethene (total)	95480	106790	103780	68700	60,100	86000	>20900 <190000
1,1-dichloroethene	296	588	474	230	<2500	4600	>1600 <10000
Ethylbenzene	29	44	35	57	<2500	22	78
2-hexanone	<50	<50	<50	not run	not run	<5	<20
1,1,2,2-tetrachloroethane	7	6	<5	16	<2500	1.9	8
toluene	495	105	215	470	<2500	77	87
1,1,2-trichloroethane	<5	9	<5	3.6	<2500	NOT RUN	62
Trichloroethene	175	3060	1720	17	<2500	190	91000
Vinyl Chloride	11600	11600	12500	1800	17000	20000	>5300 <10000
Xylenes (total)	103	113	98	160	<2500	98	>250 <20000

* lab artifact

J estimated result; result is less than reporting limit

D result was obtained by analysis of a dilution

E estimated result; result exceeds the calibration range

B Method Blank Contamination

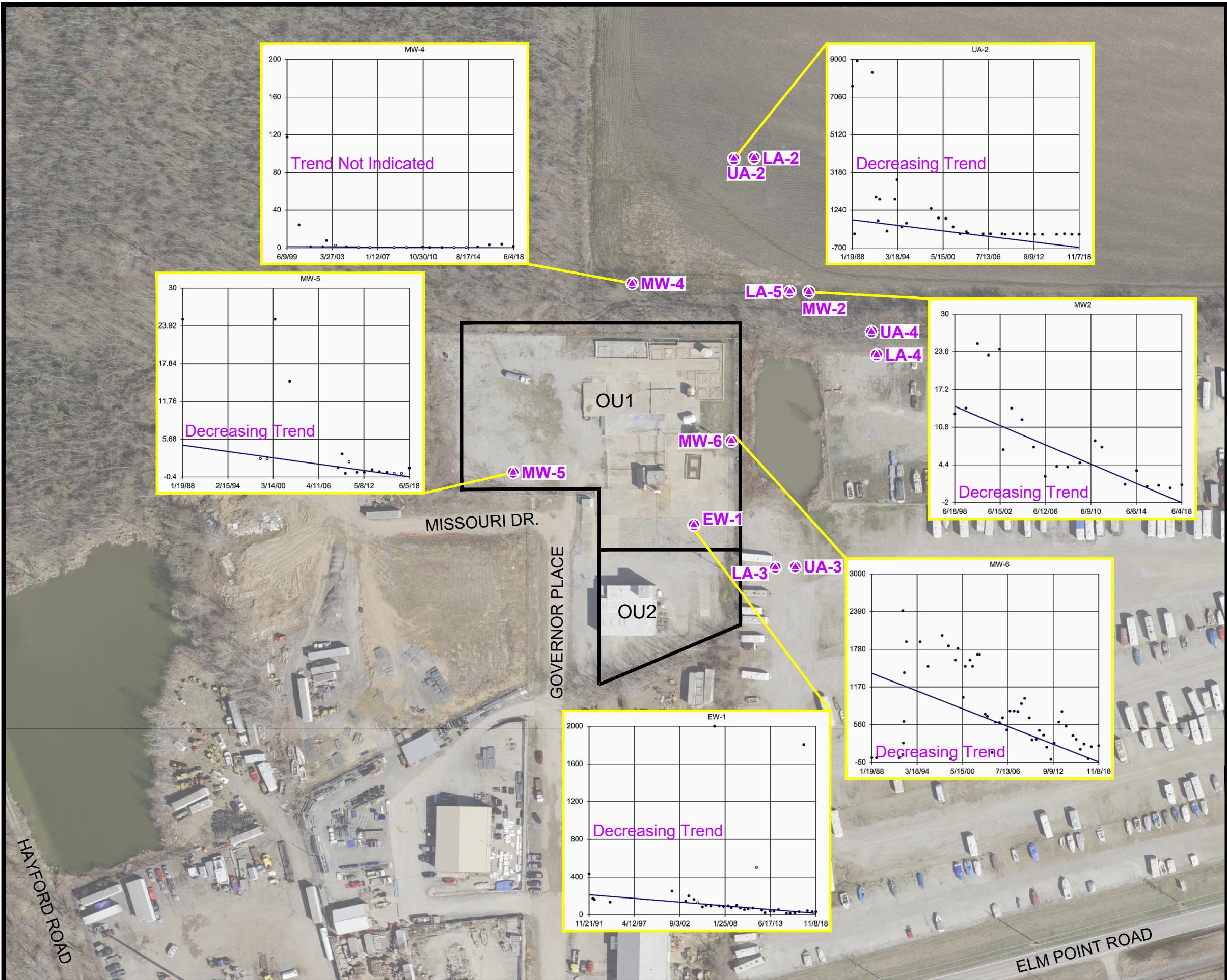
Note: Per Steve Auchterlonie/Steve Burian conversation in April 2003 during excavation of biotreat area -

we are no longer required to sample UA12 since EW1 adequately characterizes the water quality in this area.



APPENDIX I

OU1 TREND ANALYSIS DATA



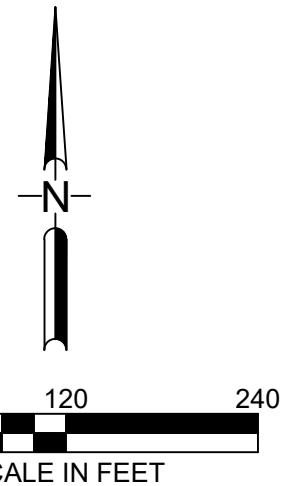
NOTES

1. Data shown for monitoring well exhibiting greater than 50% detection during monitoring period.

2. Statistical trend evaluation performed using Mann-Kendall method at 95% confidence level.

LEGEND:

▲ OU1 Monitoring Well Location (Existing)



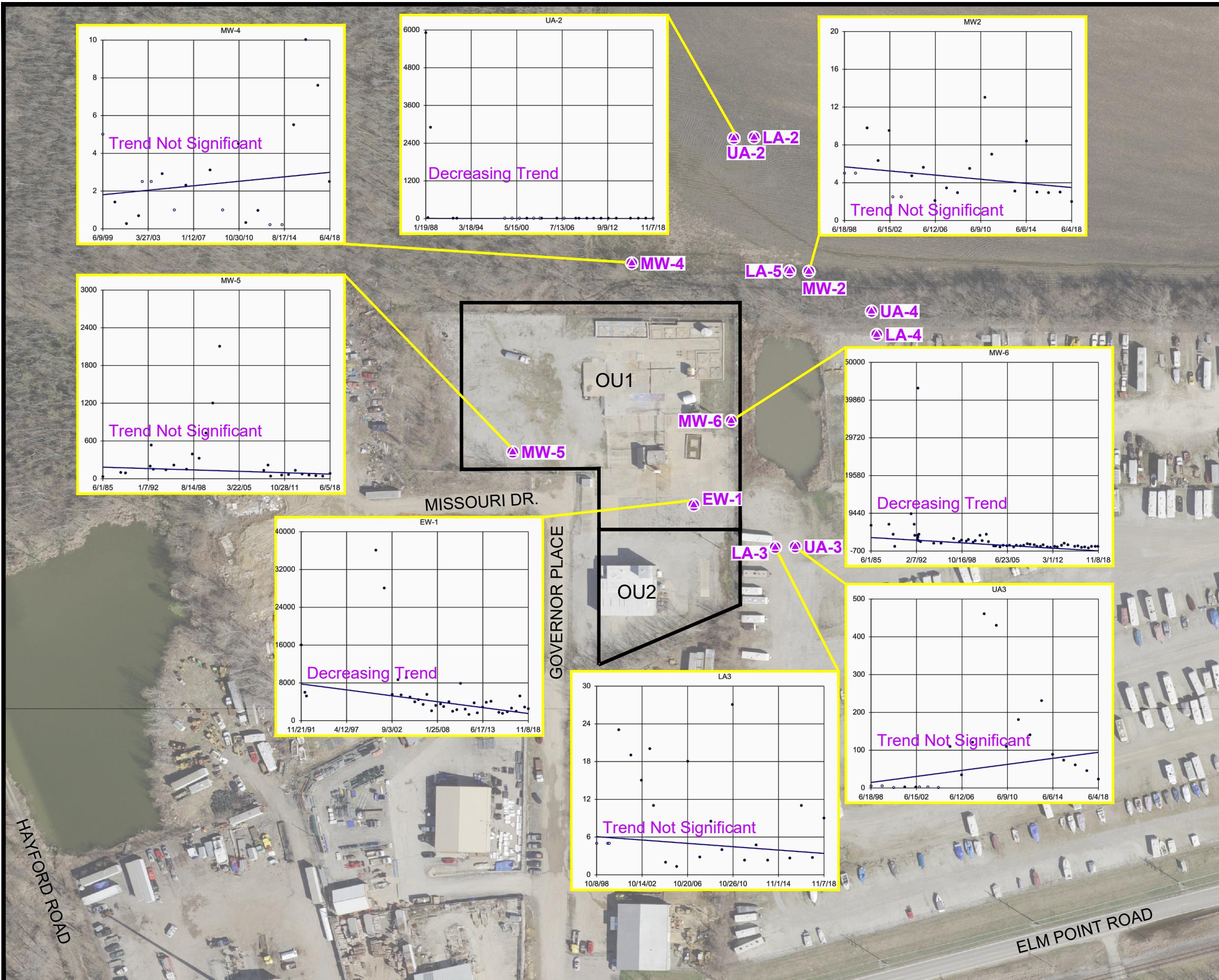
Drawn By: WAH	Ck'd By: JYG	App'vd By: KJH
Date: 10-2-19	Date: 10-22-19	Date: 10-22-19



Operable Unit 1
Hayford Bridge Road Groundwater Site
St. Charles, Missouri

BENZENE CONCENTRATION TRENDS

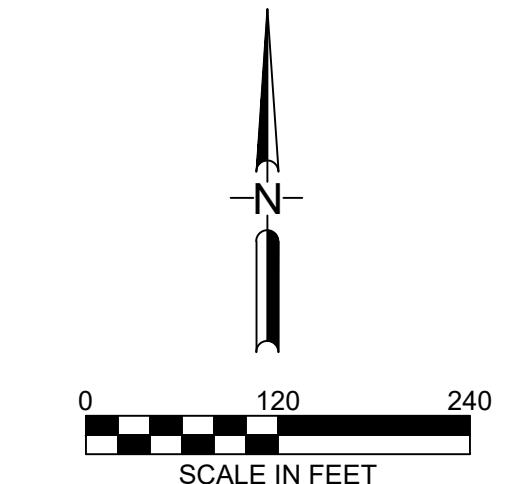
Project Number J006295.11	PLATE
------------------------------	-------



- NOTES**
1. Data shown for monitoring well exhibiting greater than 50% detection during monitoring period.
 2. Statistical trend evaluation performed using Mann-Kendall method at 95% confidence level.

LEGEND:

- ▲ OU1 Monitoring Well Location (Existing)



Drawn By: WAH Ck'd By: JYG App'd By: KJH
Date: 10-2-19 Date: 10-22-19 Date: 10-22-19

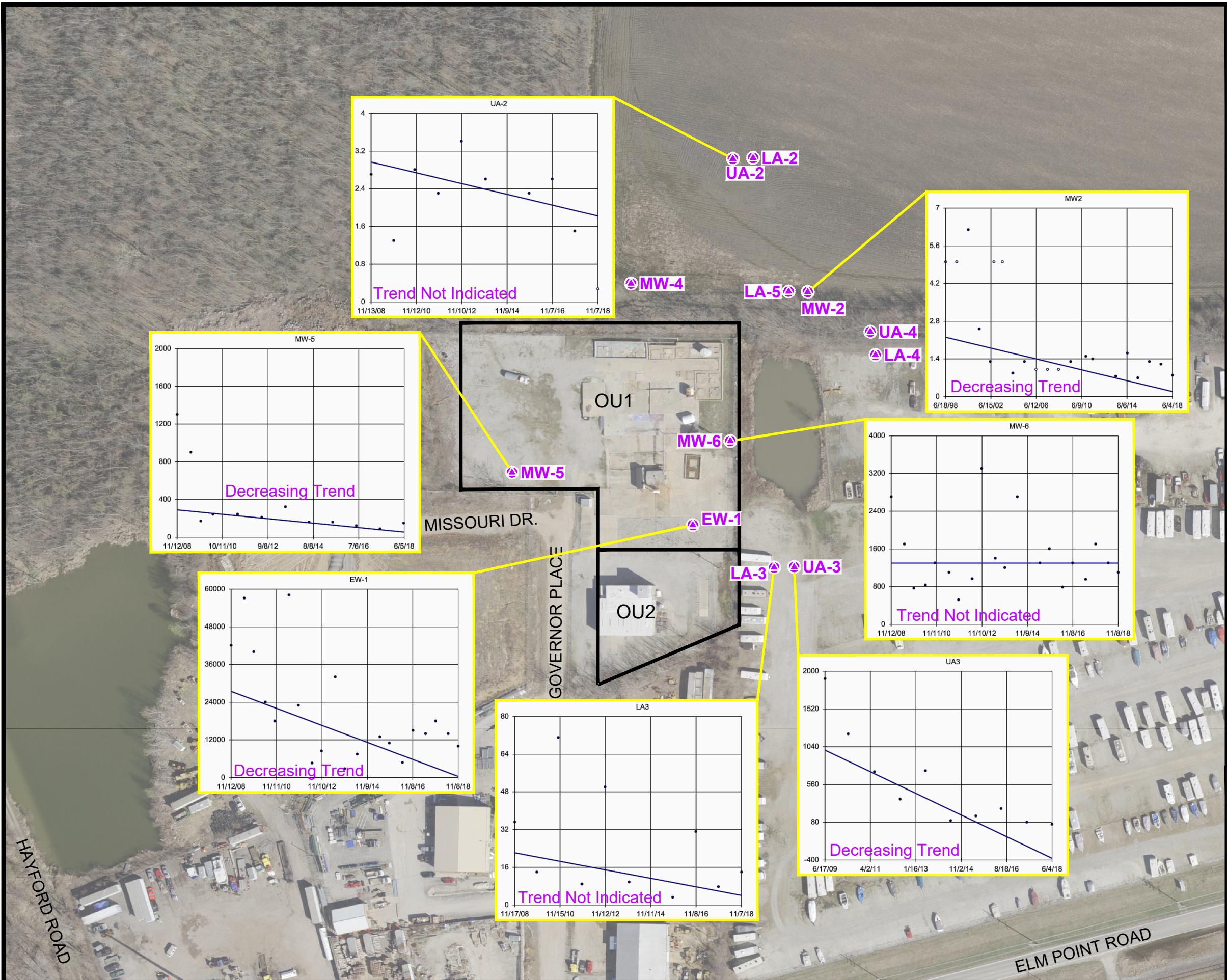


Operable Unit 1
Hayford Bridge Road Groundwater Site
St. Charles, Missouri

VINYL CHLORIDE CONCENTRATION TRENDS

Project Number
J006295.11

PLATE

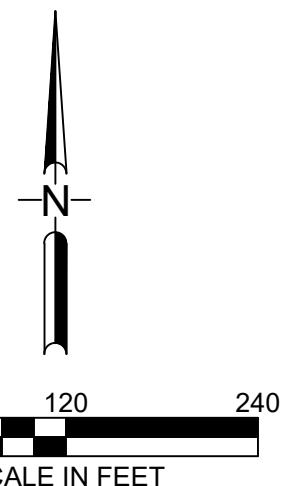


NOTES

1. Data shown for monitoring well exhibiting greater than 50% detection during monitoring period.
2. Statistical trend evaluation performed using Mann-Kendall method at 95% confidence level.

LEGEND:

▲ OU1 Monitoring Well Location (Existing)

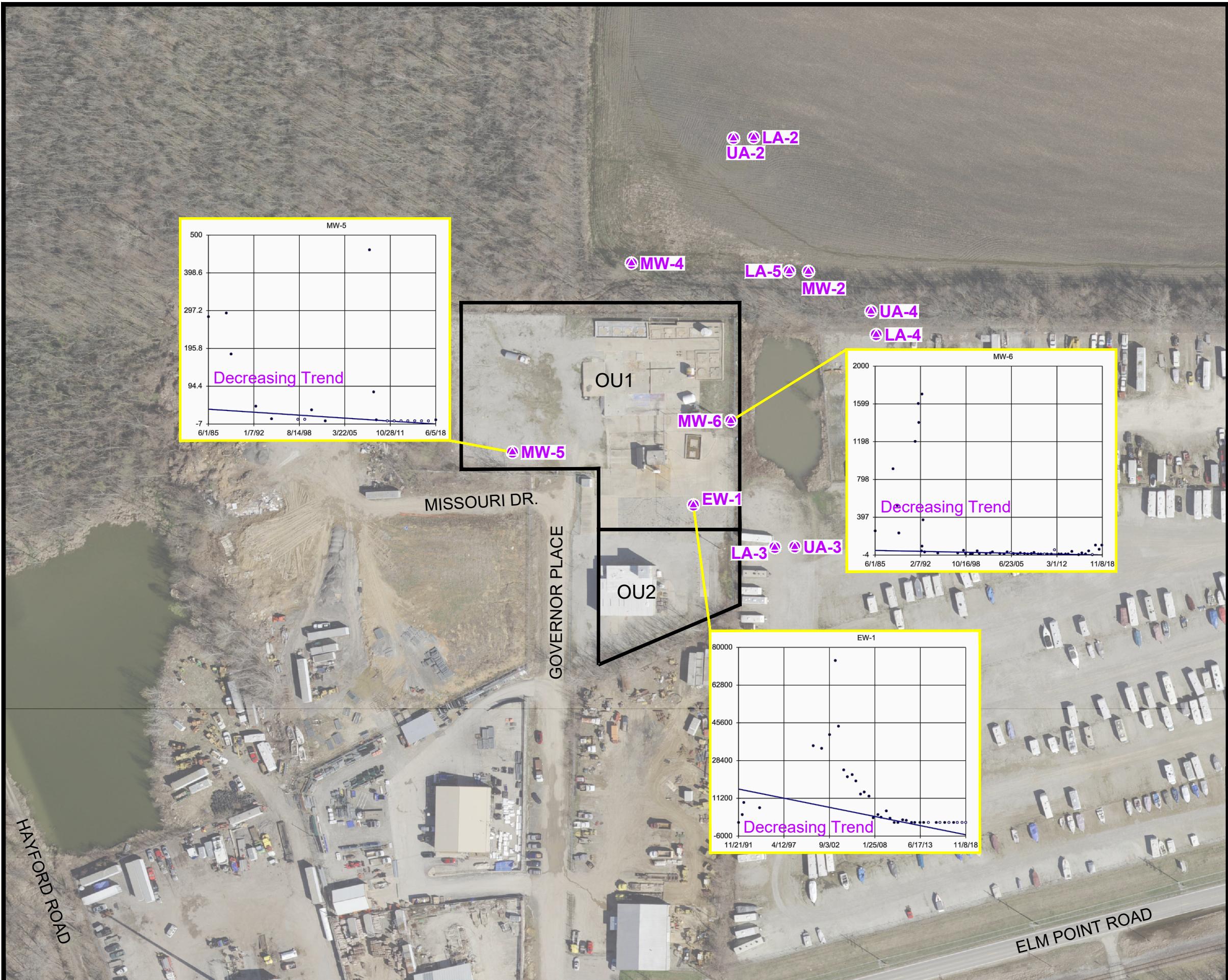


Drawn By: WAH Ck'd By: JYG App'vd By: KJH
Date: 10-2-19 Date: 10-22-19 Date: 10-22-19



Operable Unit 1
Hayford Bridge Road Groundwater Site
St. Charles, Missouri

1,2 DCE
CONCENTRATION TRENDS
Project Number J006295.11 PLATE

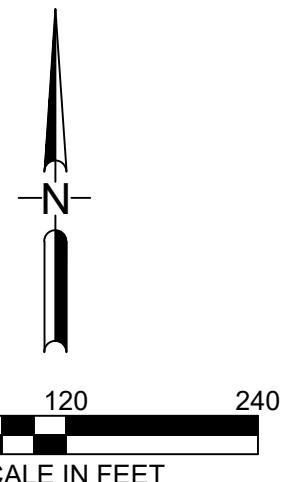


NOTES

1. Data shown for monitoring well exhibiting greater than 50% detection during monitoring period.
2. Statistical trend evaluation performed using Mann-Kendall method at 95% confidence level.

LEGEND:

- ▲ OU1 Monitoring Well Location (Existing)



Drawn By: WAH	Ck'd By: JYG	App'vd By: KJH
Date: 10-2-19	Date: 10-22-19	Date: 10-22-19

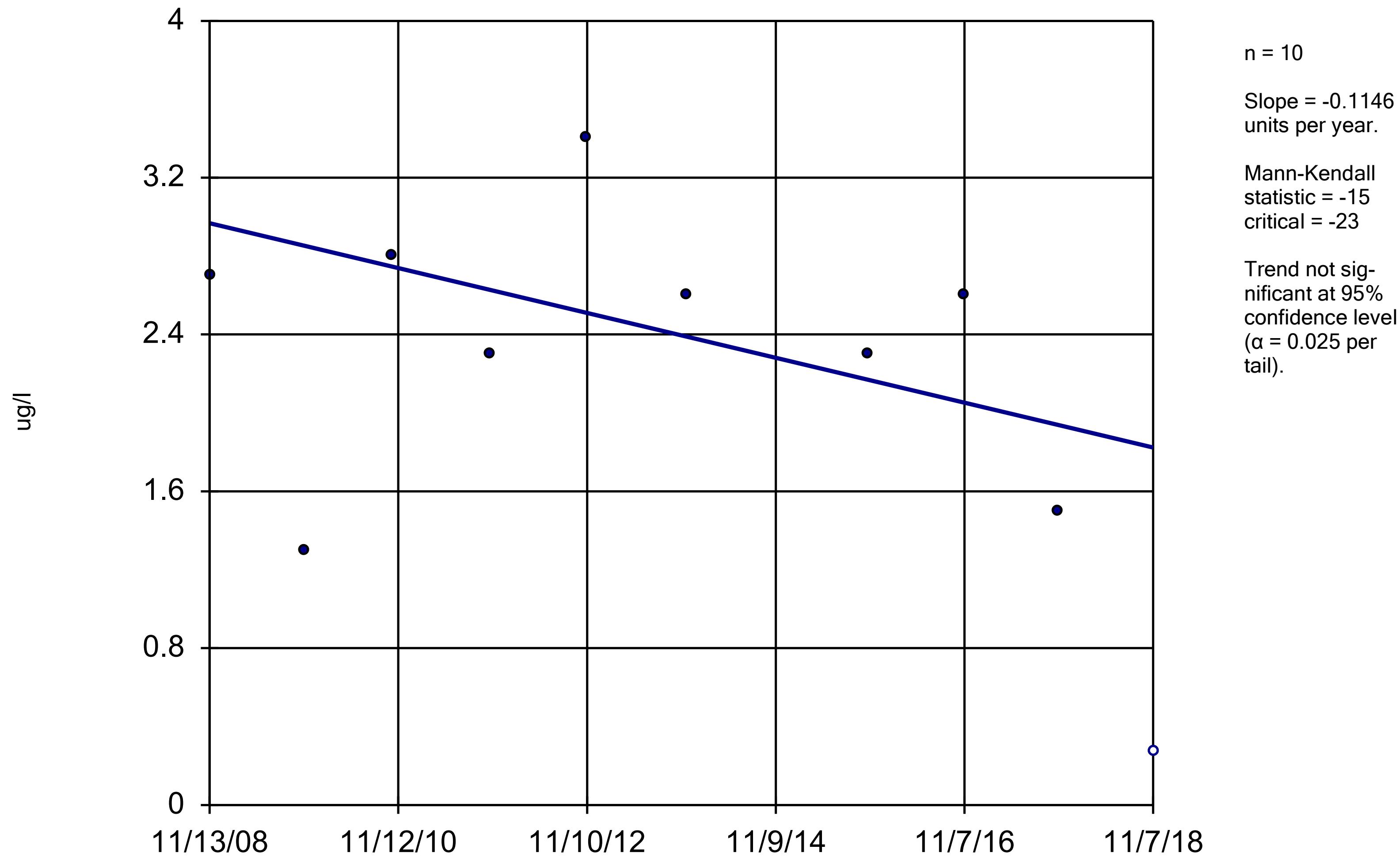


Operable Unit 1
Hayford Bridge Road Groundwater Site
St. Charles, Missouri

TCE CONCENTRATION TRENDS	
Project Number J006295.11	PLATE

Sen's Slope Estimator

UA-2

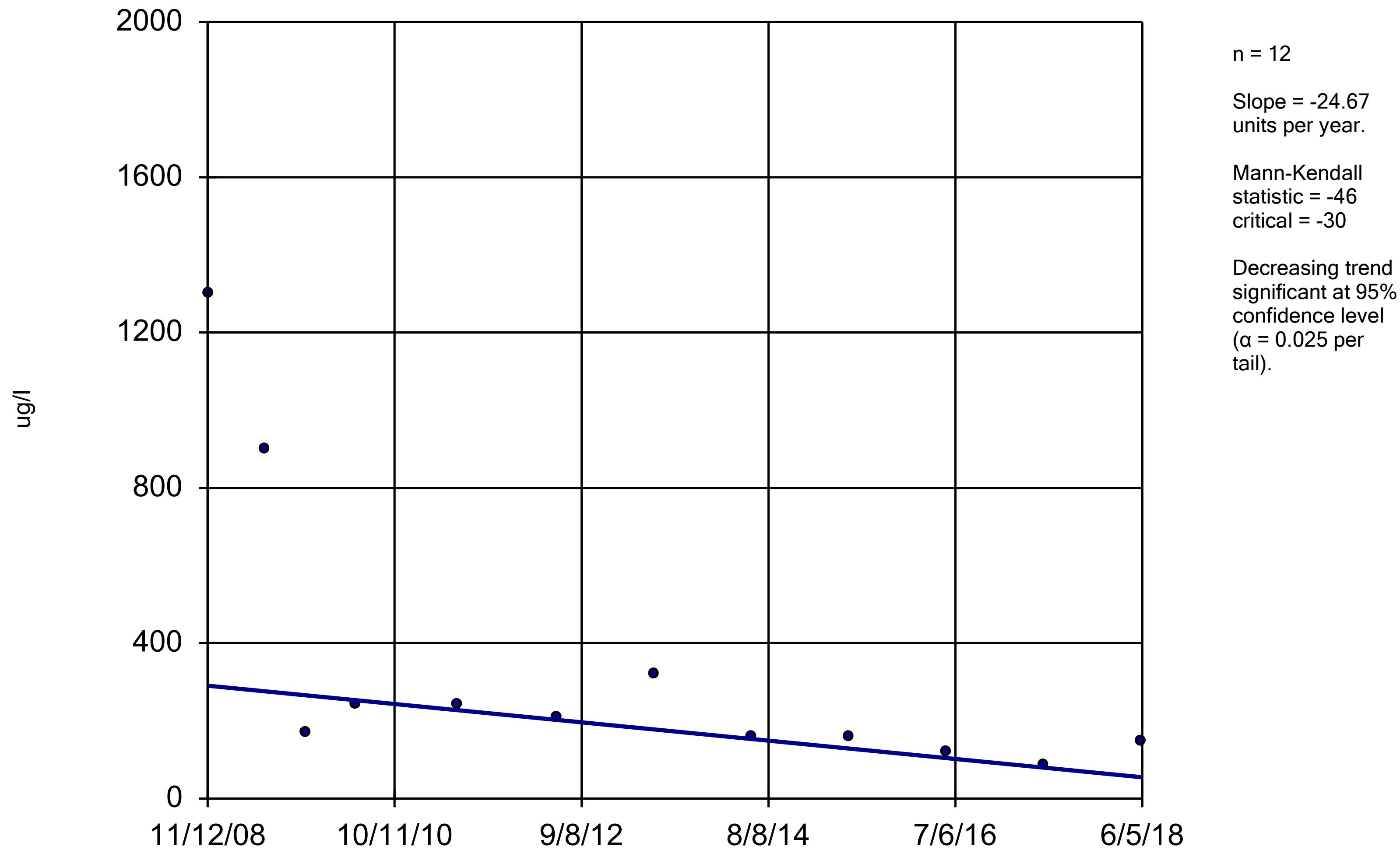


Constituent: 12-dichloroethene [total] Analysis Run 9/25/2019 4:49 PM View: DO_ORP

OU3 HBR Client: Geotechnology Data: OU3 Master Data File

Sen's Slope Estimator

MW-5

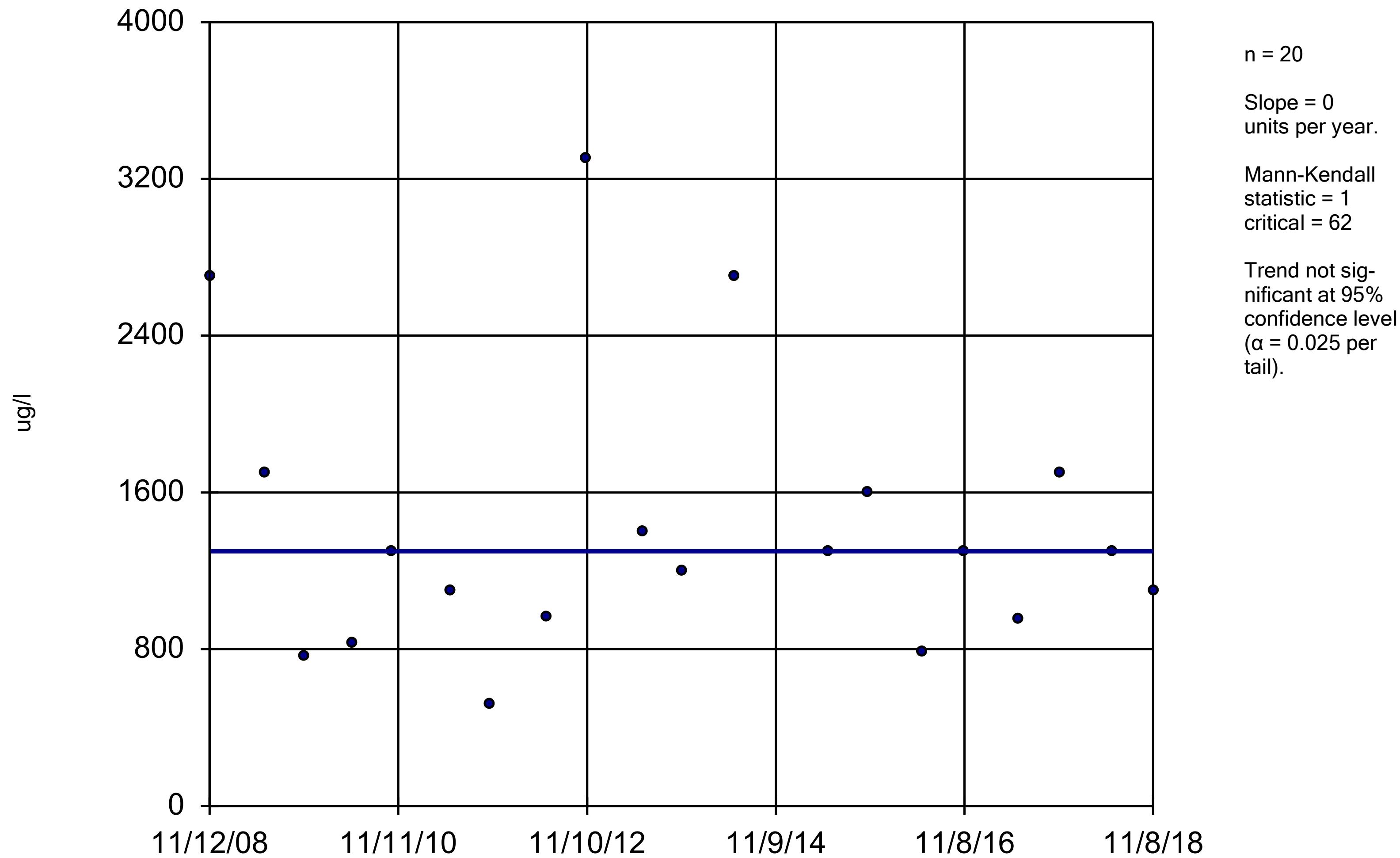


Constituent: 1,2-dichloroethene [total] Analysis Run 9/25/2019 4:49 PM View: DO_ORP

OU3 HBR Client: Geotechnology Data: OU3 Master Data File

Sen's Slope Estimator

MW-6

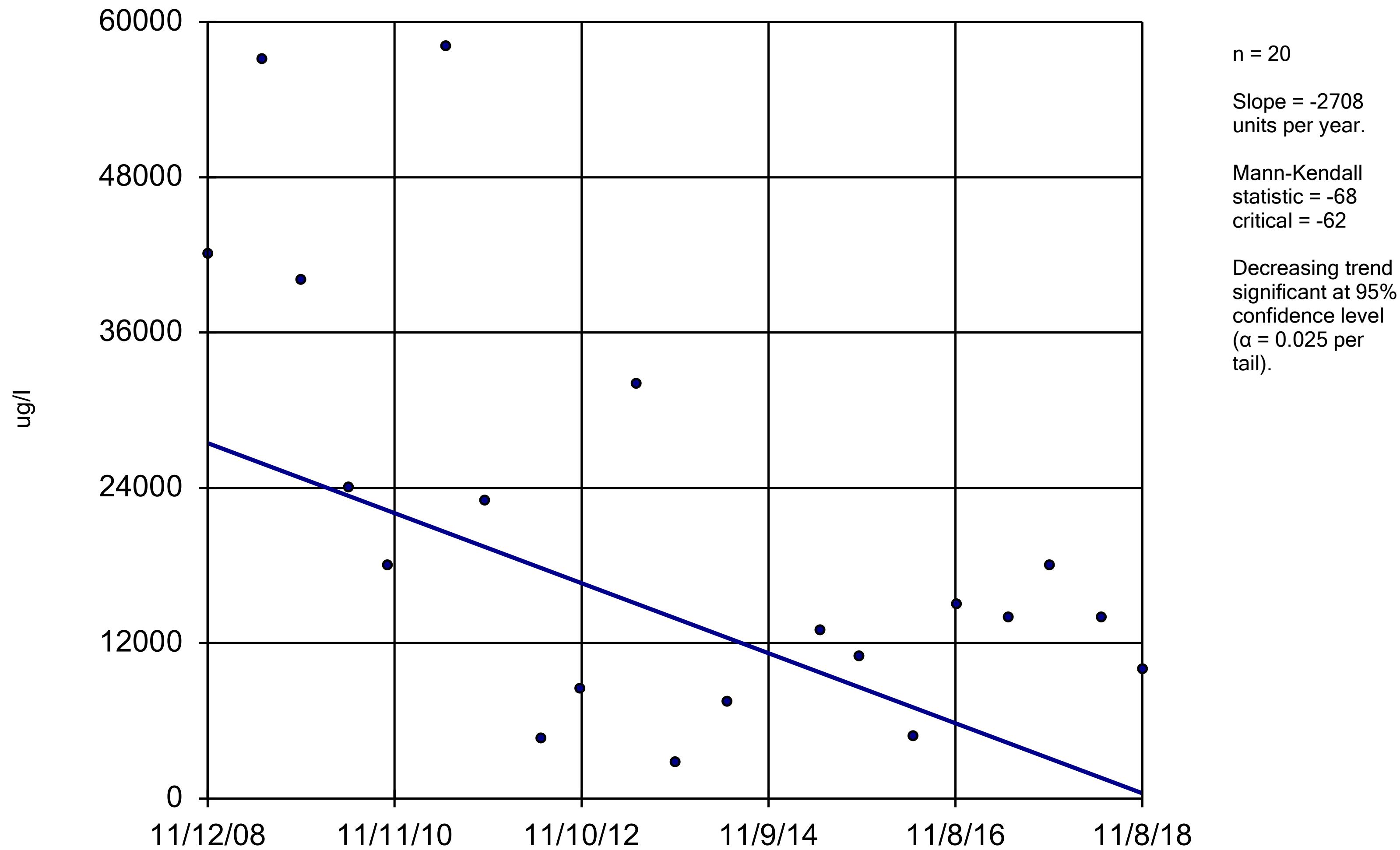


Constituent: 12-dichloroethene [total] Analysis Run 9/25/2019 4:49 PM View: DO_ORP

OU3 HBR Client: Geotechnology Data: OU3 Master Data File

Sen's Slope Estimator

EW-1

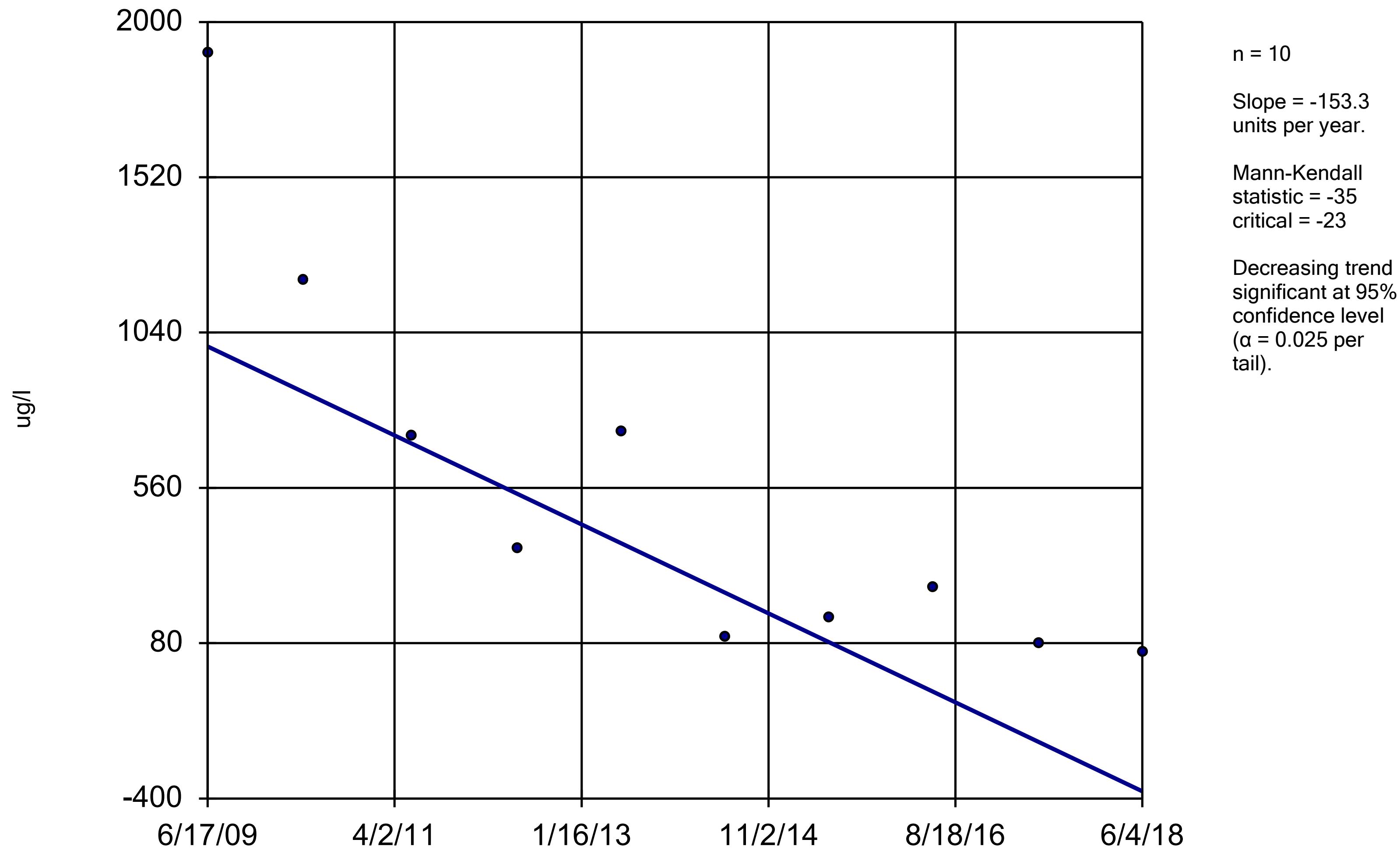


Constituent: 1,2-dichloroethene [total] Analysis Run 9/25/2019 4:49 PM View: DO_ORP

OU3 HBR Client: Geotechnology Data: OU3 Master Data File

Sen's Slope Estimator

UA3

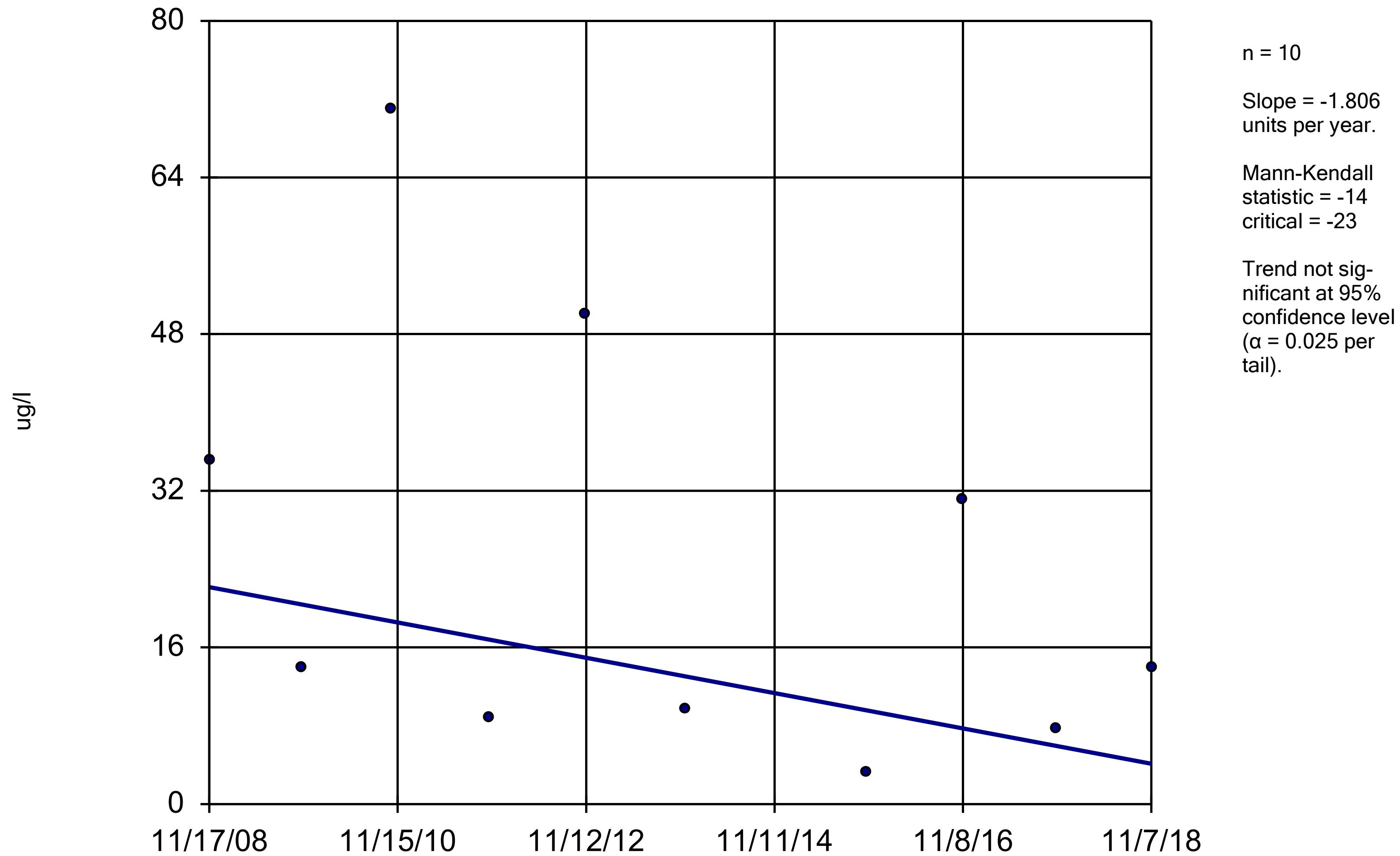


Constituent: 1,2-dichloroethene [total] Analysis Run 9/25/2019 4:49 PM View: DO_ORP

OU3 HBR Client: Geotechnology Data: OU3 Master Data File

Sen's Slope Estimator

LA3

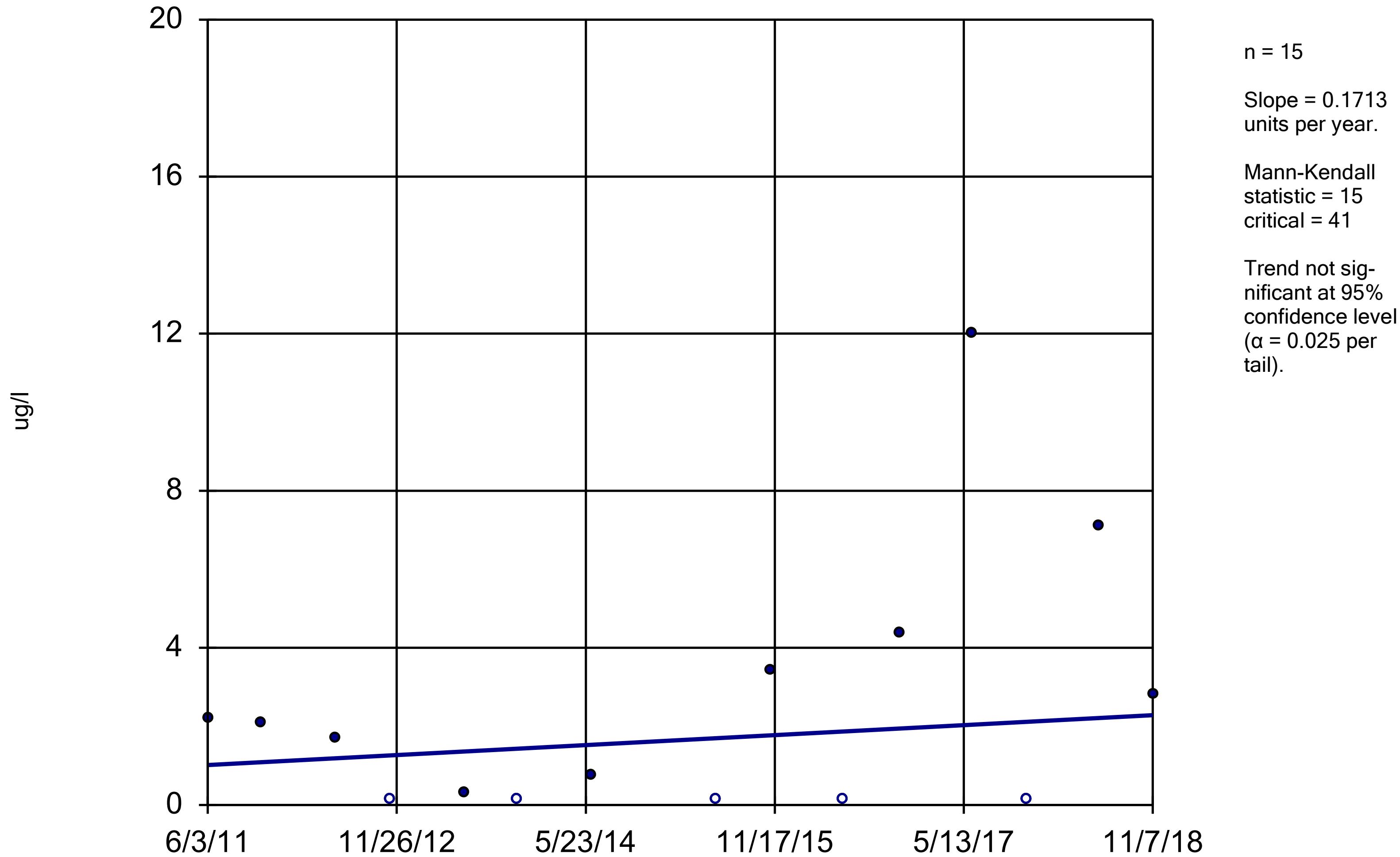


Constituent: 1,2-dichloroethene [total] Analysis Run 9/25/2019 4:49 PM View: DO_ORP

OU3 HBR Client: Geotechnology Data: OU3 Master Data File

Sen's Slope Estimator

TUD

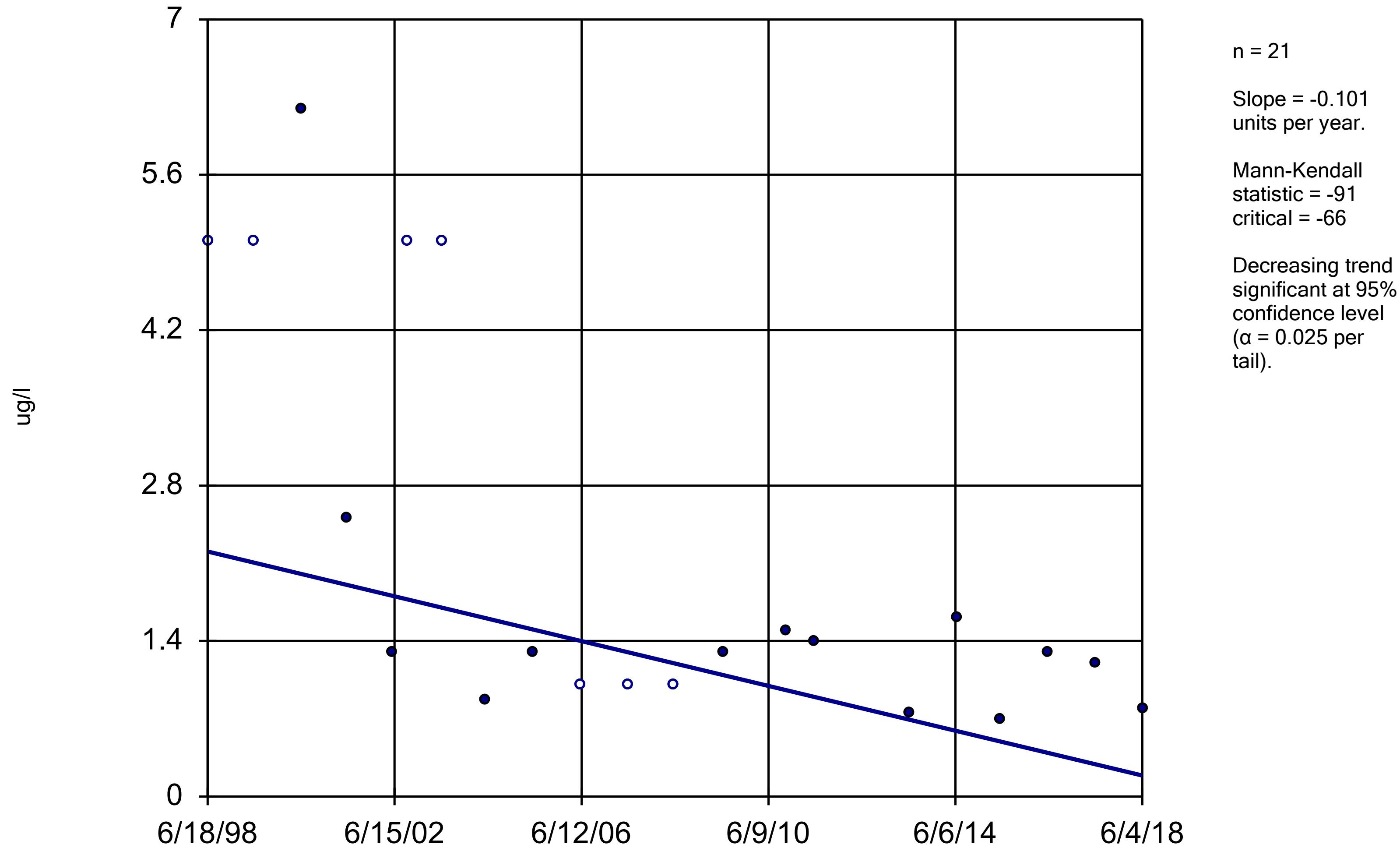


Constituent: 12-dichloroethene [total] Analysis Run 9/25/2019 4:49 PM View: DO_ORP

OU3 HBR Client: Geotechnology Data: OU3 Master Data File

Sen's Slope Estimator

MW2

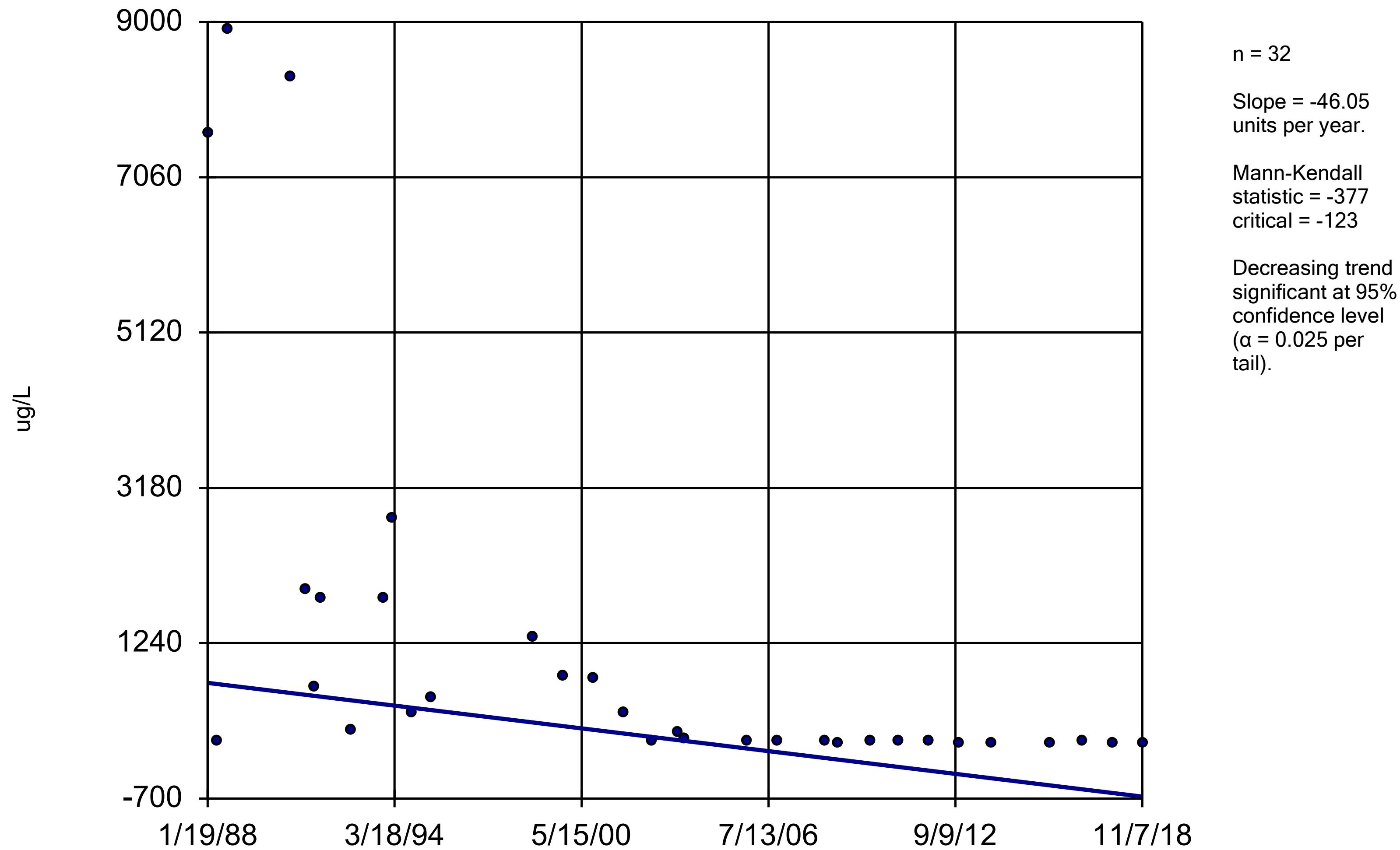


Constituent: 12-dichloroethene [total] Analysis Run 9/25/2019 4:49 PM View: DO_ORP

OU3 HBR Client: Geotechnology Data: OU3 Master Data File

Sen's Slope Estimator

UA-2



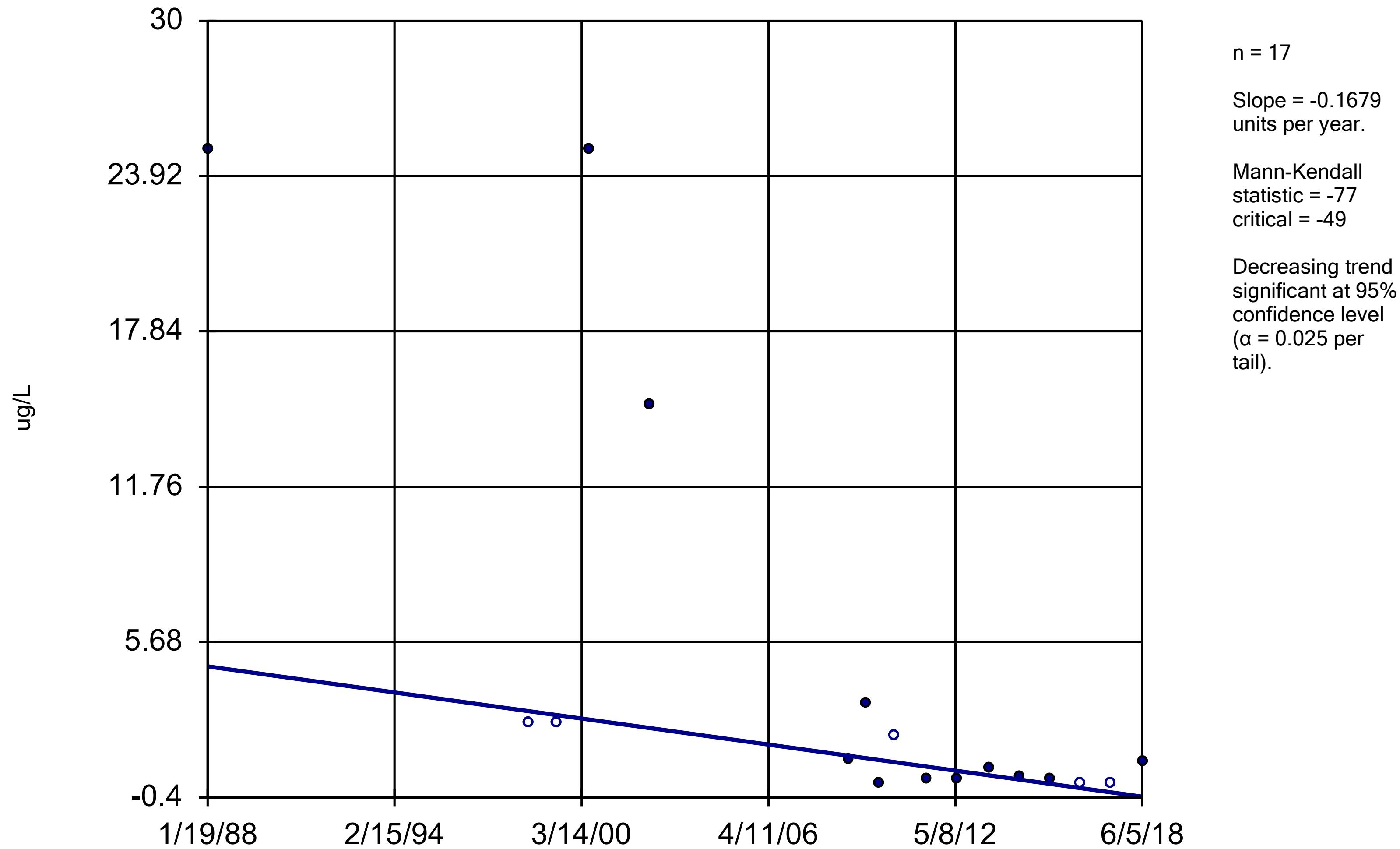
Constituent: Benzene Analysis Run 9/25/2019 4:49 PM View: DO_ORP

OU3 HBR Client: Geotechnology Data: OU3 Master Data File

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Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-5

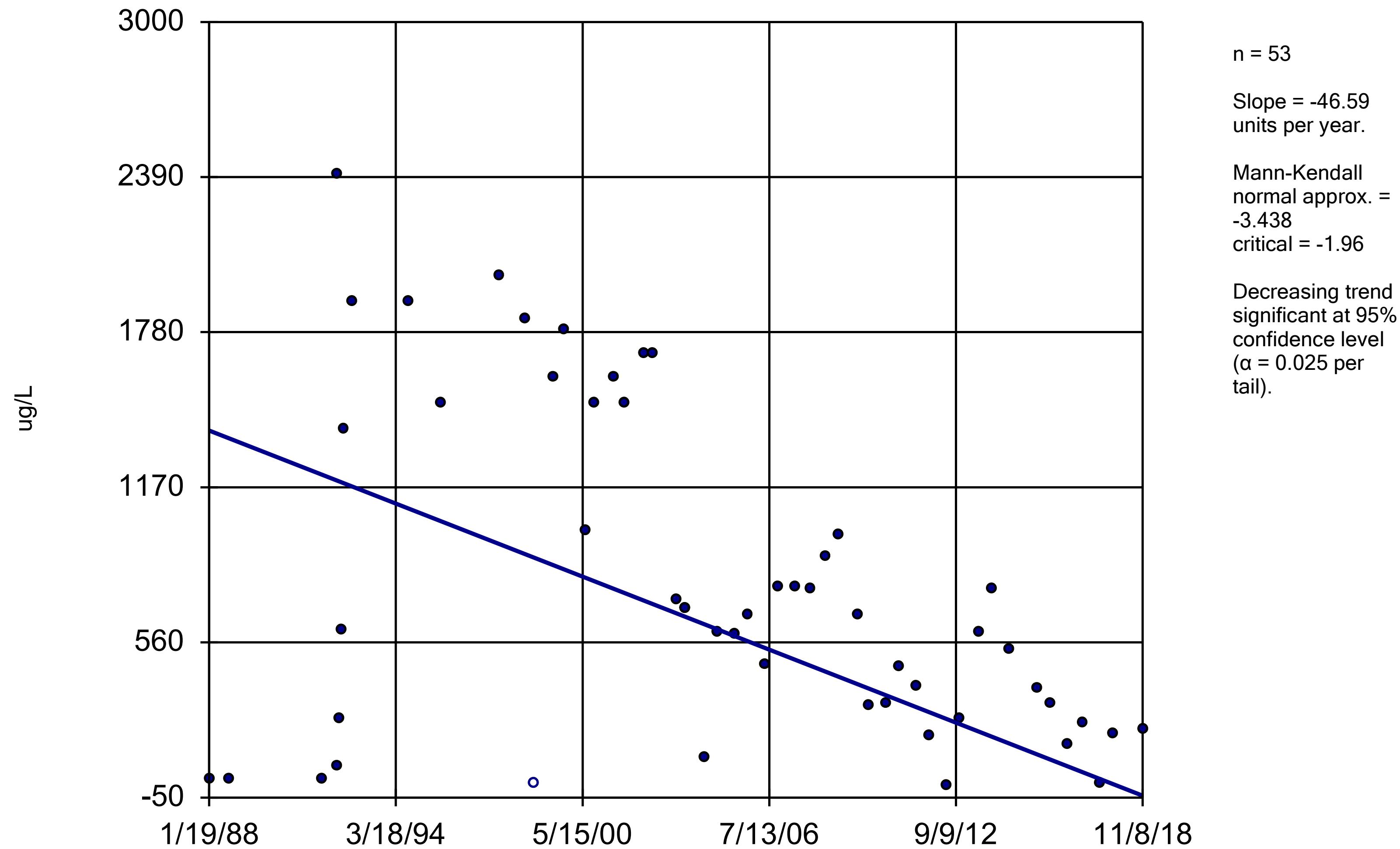


Constituent: Benzene Analysis Run 9/25/2019 4:49 PM View: DO_ORP

OU3 HBR Client: Geotechnology Data: OU3 Master Data File

Sen's Slope Estimator

MW-6



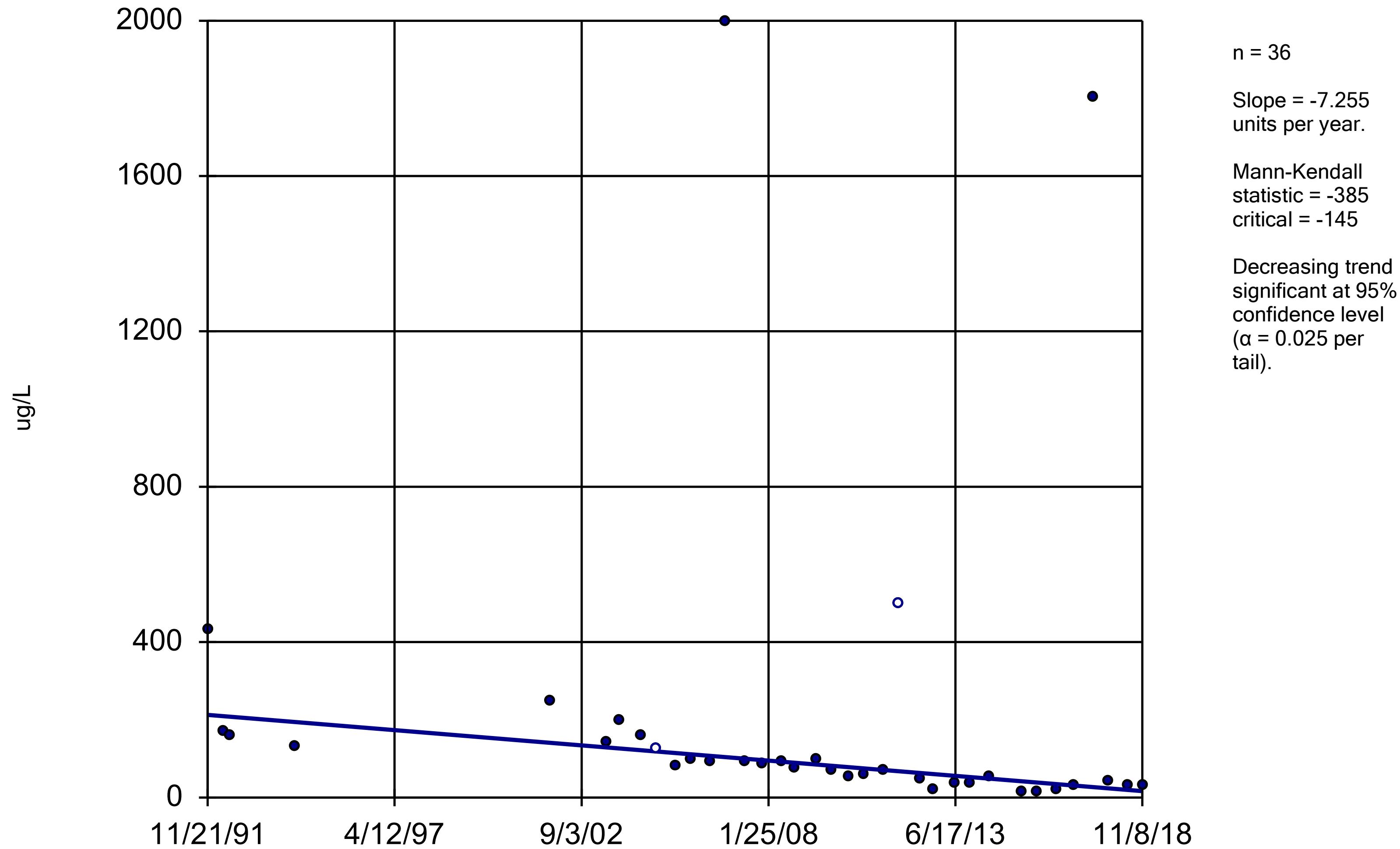
Constituent: Benzene Analysis Run 9/25/2019 4:49 PM View: DO_ORP

OU3 HBR Client: Geotechnology Data: OU3 Master Data File

Sanitas™ v.9.6.23 Sanitas software licensed to Geotechnology. EPA
Hollow symbols indicate censored values.

Sen's Slope Estimator

EW-1

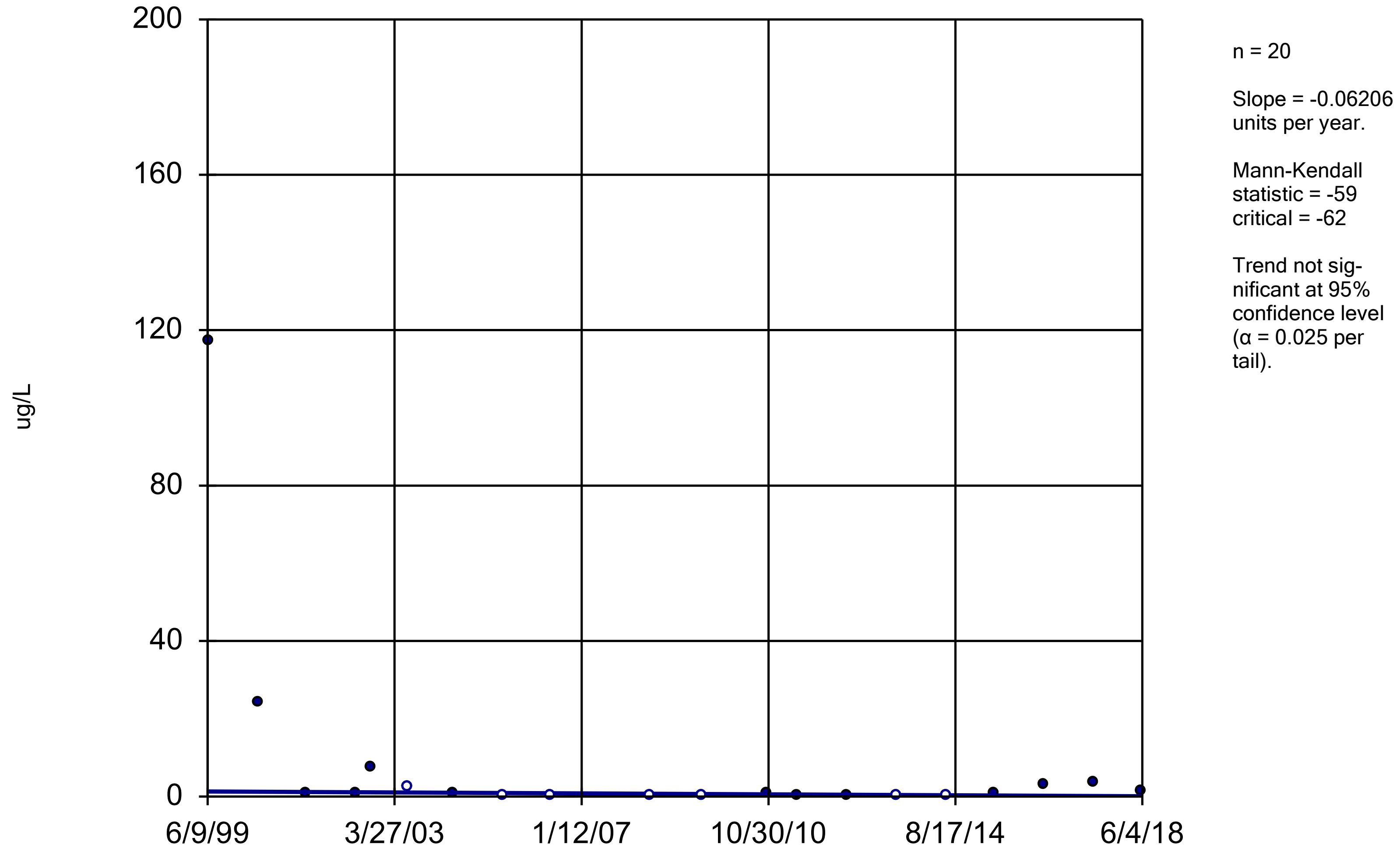


Constituent: Benzene Analysis Run 9/25/2019 4:49 PM View: DO_ORP

OU3 HBR Client: Geotechnology Data: OU3 Master Data File

Sen's Slope Estimator

MW-4

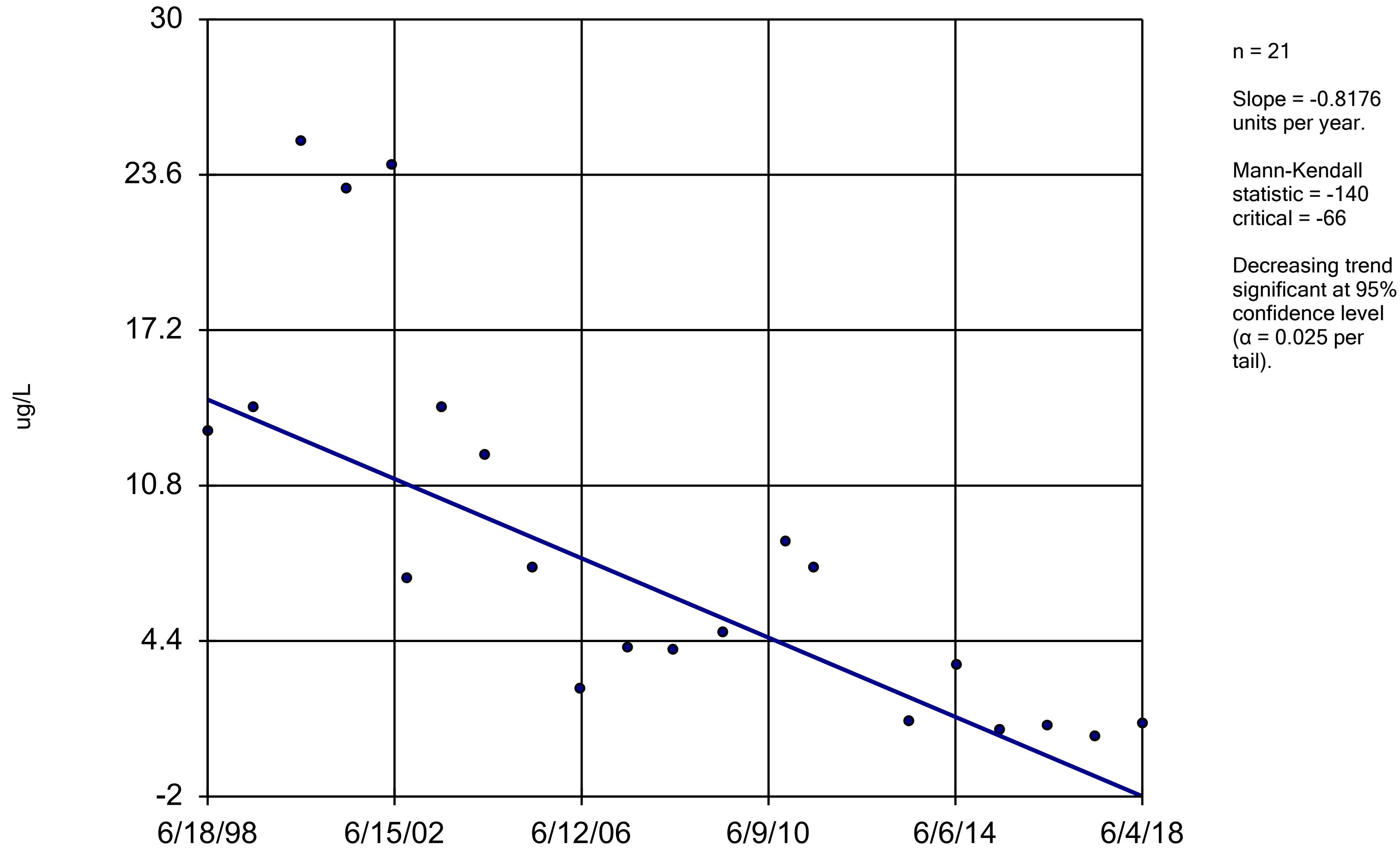


Constituent: Benzene Analysis Run 9/25/2019 4:49 PM View: DO_ORP

OU3 HBR Client: Geotechnology Data: OU3 Master Data File

Sen's Slope Estimator

MW2



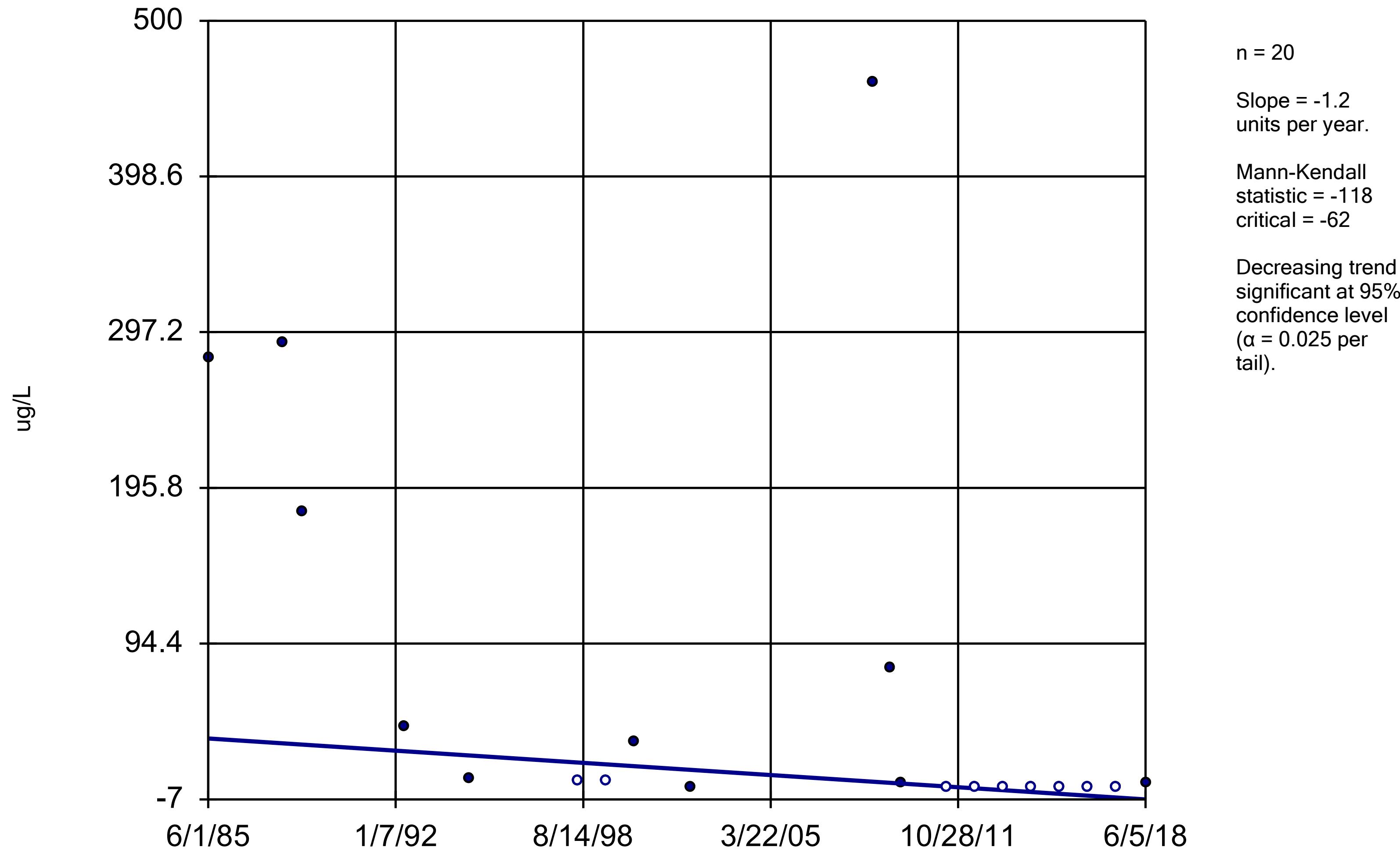
Constituent: Benzene Analysis Run 9/25/2019 4:49 PM View: DO_ORP

OU3 HBR Client: Geotechnology Data: OU3 Master Data File

Sanitas™ v.9.6.23 Sanitas software licensed to Geotechnology. EPA
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-5

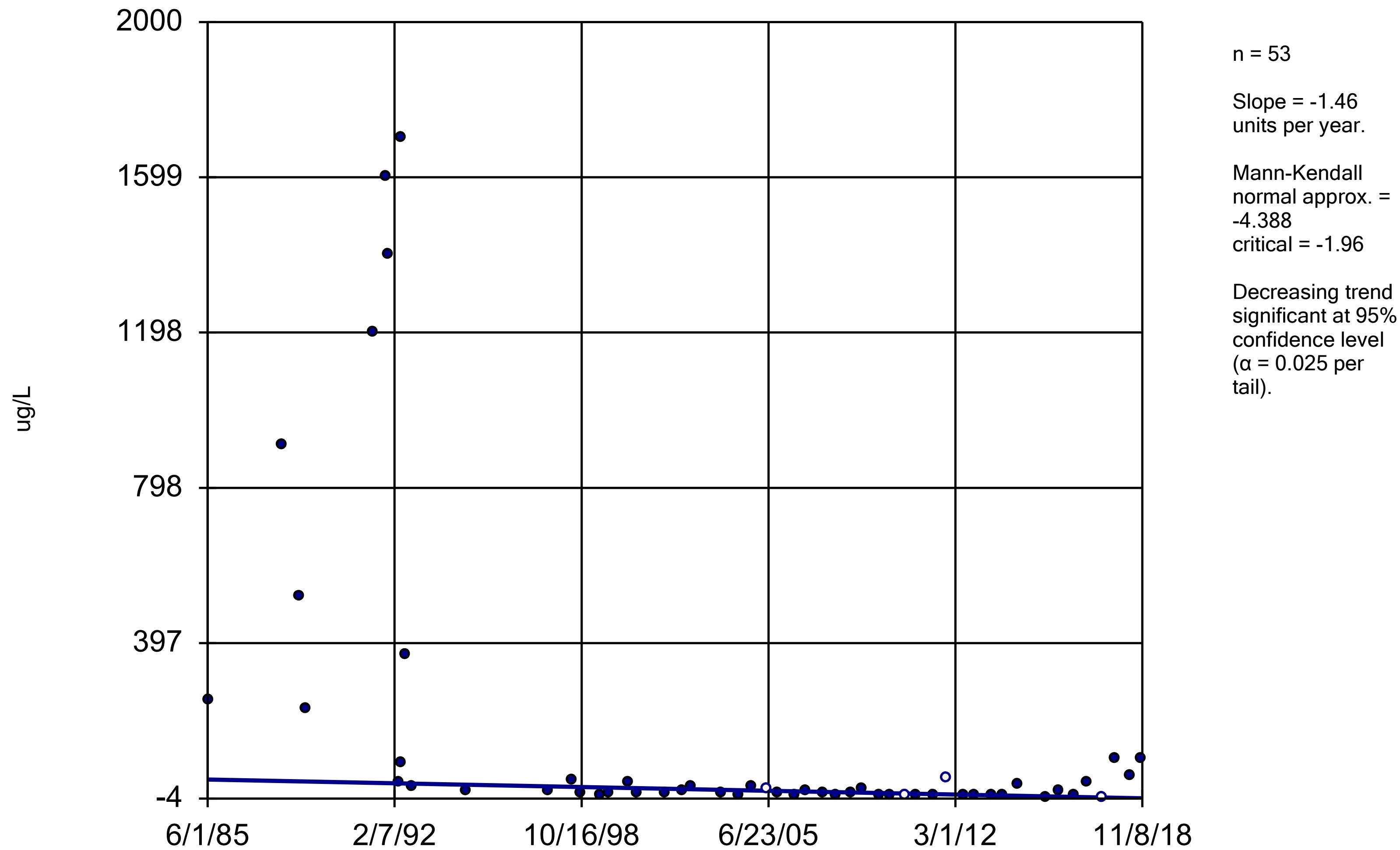


Constituent: Trichloroethene Analysis Run 9/25/2019 4:49 PM View: DO_ORP

OU3 HBR Client: Geotechnology Data: OU3 Master Data File

Sen's Slope Estimator

MW-6



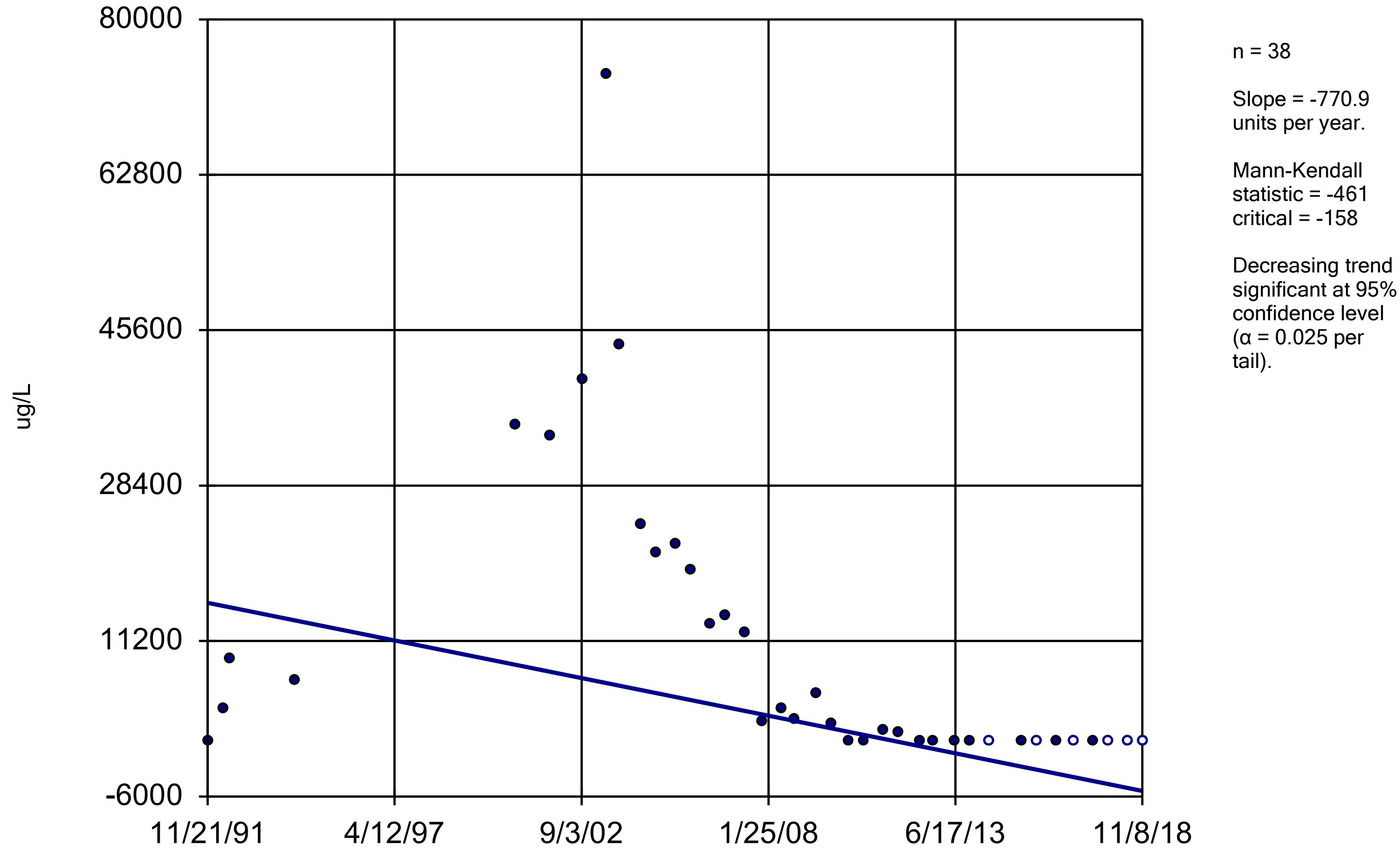
Constituent: Trichloroethene Analysis Run 9/25/2019 4:49 PM View: DO_ORP

OU3 HBR Client: Geotechnology Data: OU3 Master Data File

Sanitas™ v.9.6.23 Sanitas software licensed to Geotechnology. EPA
Hollow symbols indicate censored values.

Sen's Slope Estimator

EW-1



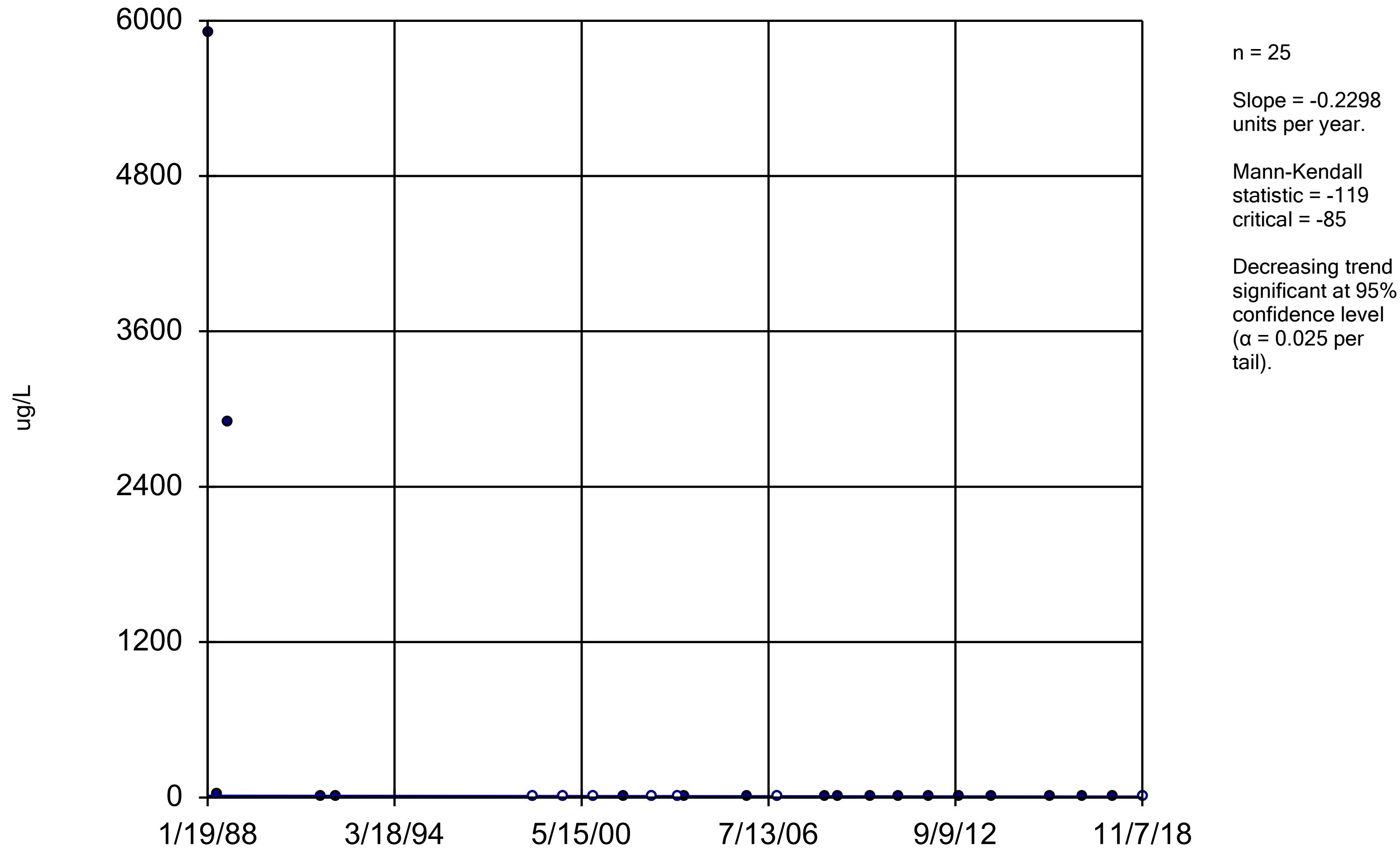
Constituent: Trichloroethene Analysis Run 9/25/2019 4:49 PM View: DO_ORP

OU3 HBR Client: Geotechnology Data: OU3 Master Data File

Sanitas™ v.9.6.23 Sanitas software licensed to Geotechnology. EPA
Hollow symbols indicate censored values.

Sen's Slope Estimator

UA-2

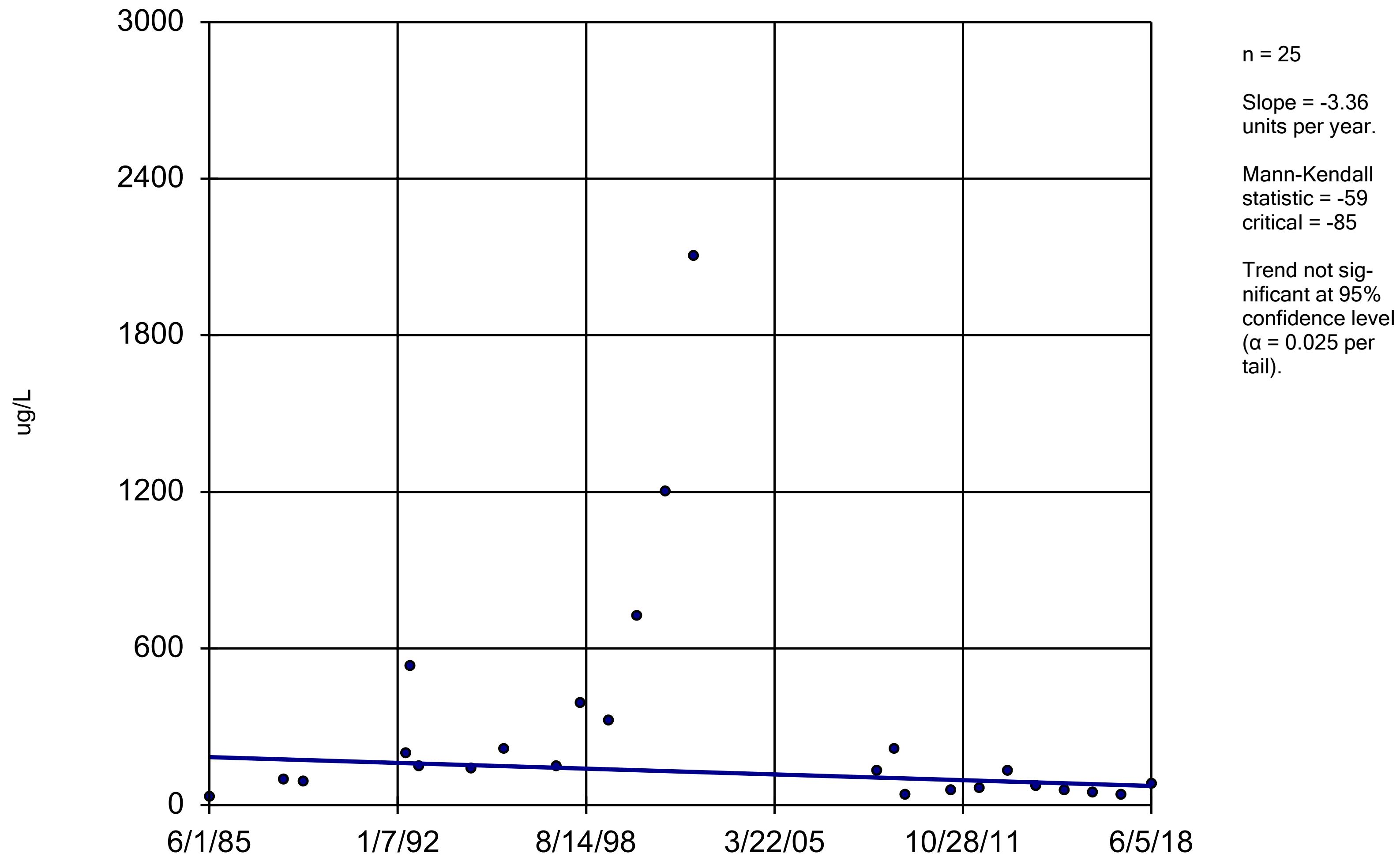


Constituent: Vinyl chloride Analysis Run 9/25/2019 4:49 PM View: DO_ORP

OU3 HBR Client: Geotechnology Data: OU3 Master Data File

Sen's Slope Estimator

MW-5

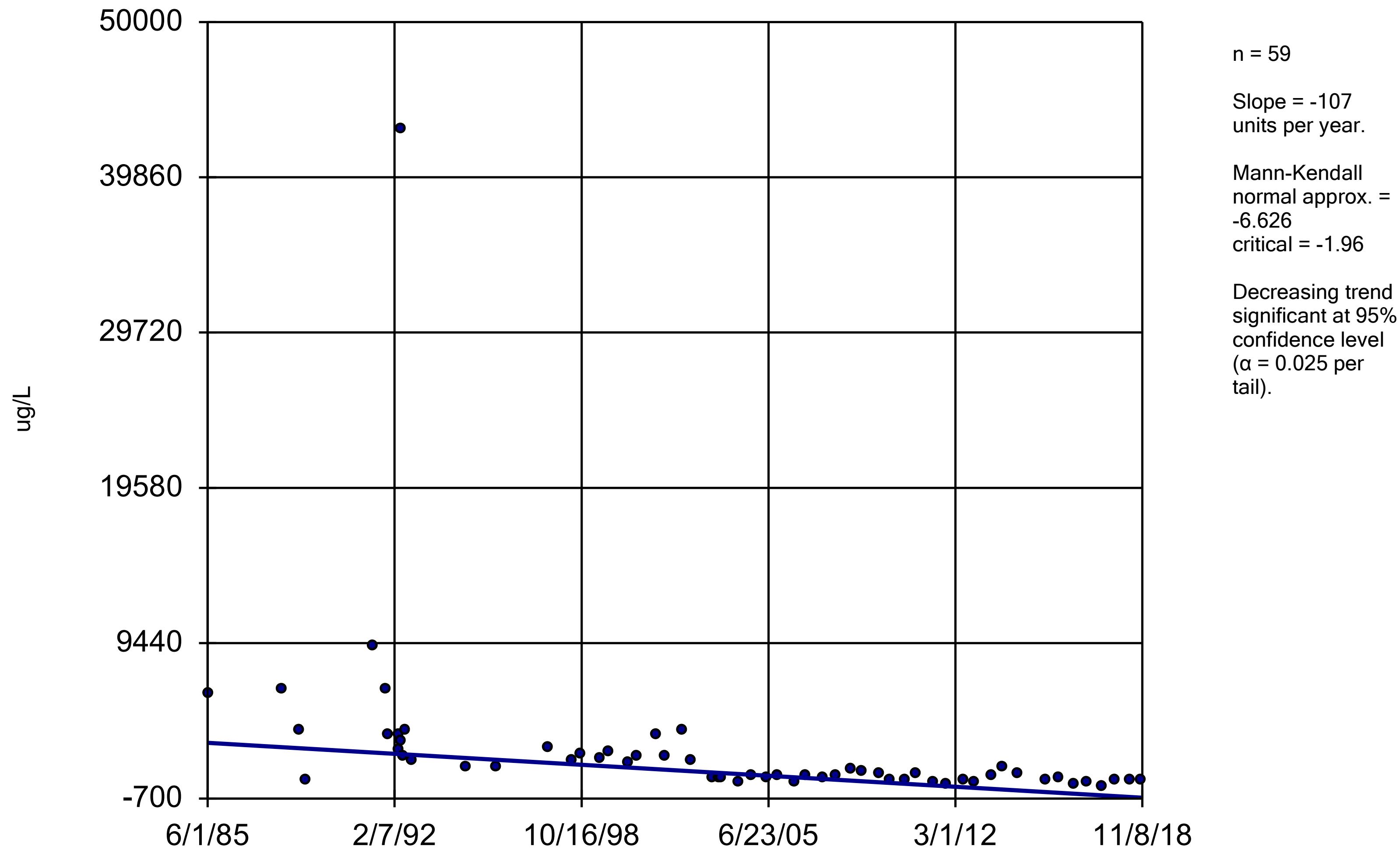


Constituent: Vinyl chloride Analysis Run 9/25/2019 4:49 PM View: DO_ORP

OU3 HBR Client: Geotechnology Data: OU3 Master Data File

Sen's Slope Estimator

MW-6

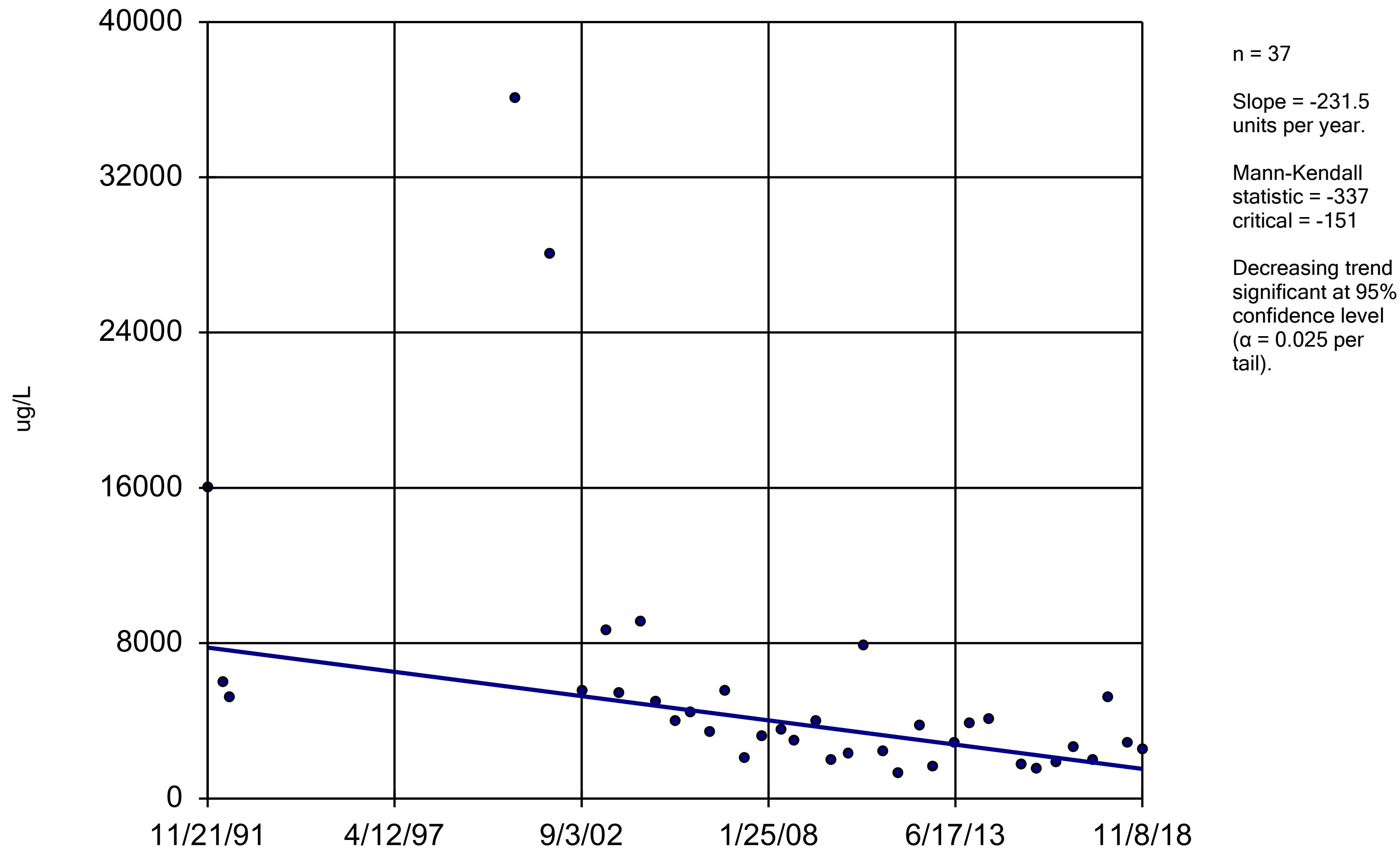


Constituent: Vinyl chloride Analysis Run 9/25/2019 4:49 PM View: DO_ORP

OU3 HBR Client: Geotechnology Data: OU3 Master Data File

Sen's Slope Estimator

EW-1

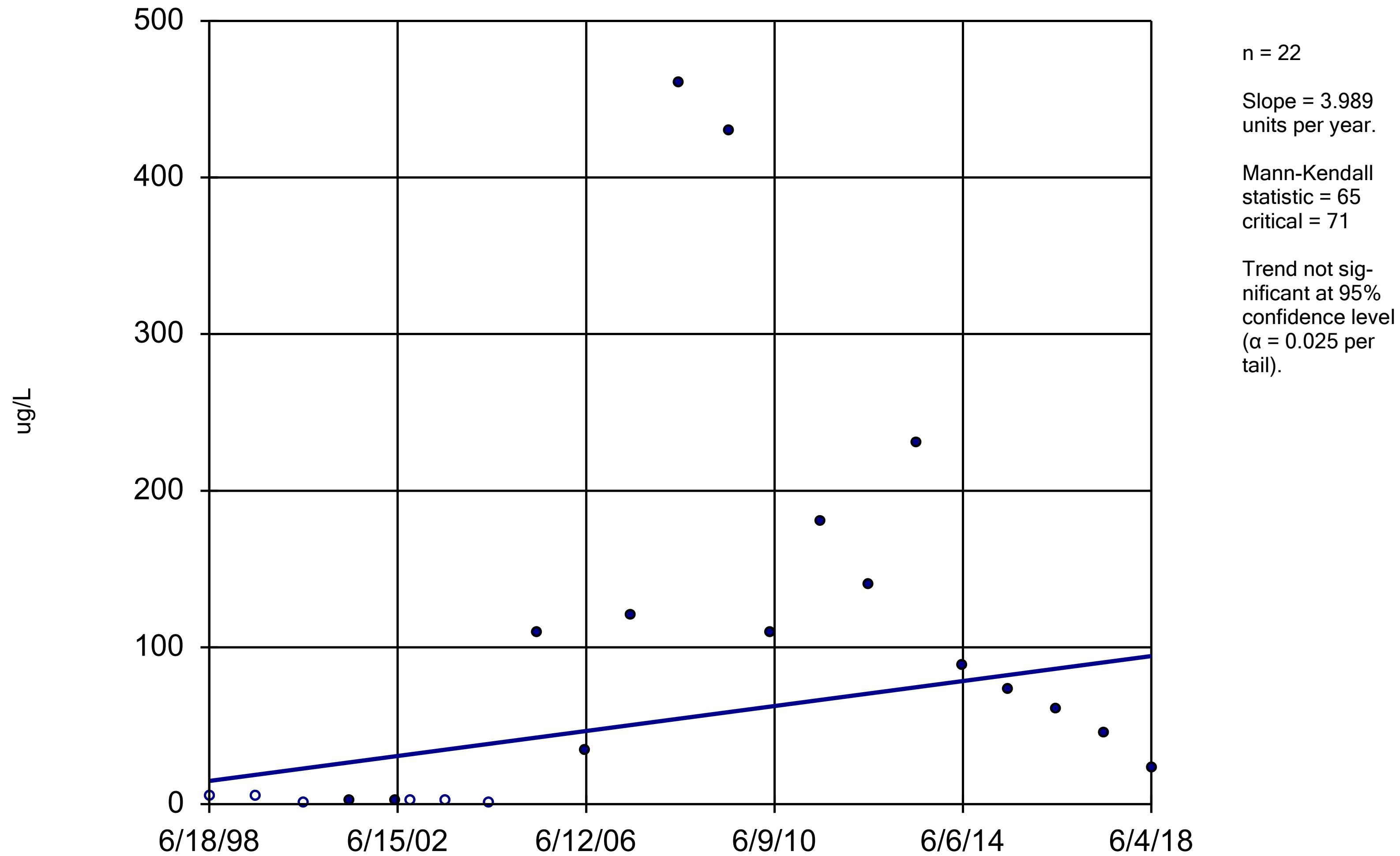


Constituent: Vinyl chloride Analysis Run 9/25/2019 4:49 PM View: DO_ORP

OU3 HBR Client: Geotechnology Data: OU3 Master Data File

Sen's Slope Estimator

UA3

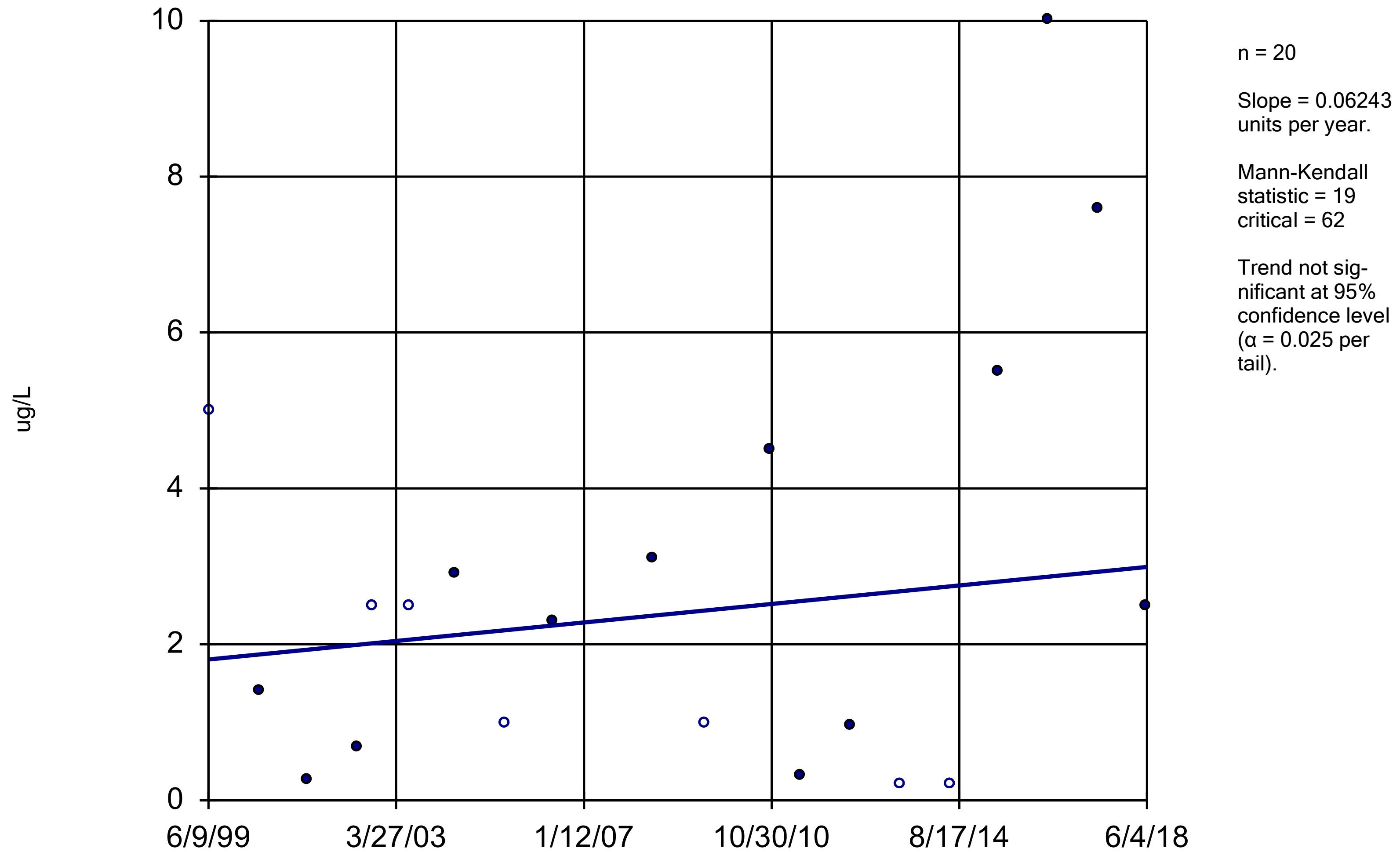


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OU3 HBR Client: Geotechnology Data: OU3 Master Data File

Sen's Slope Estimator

MW-4

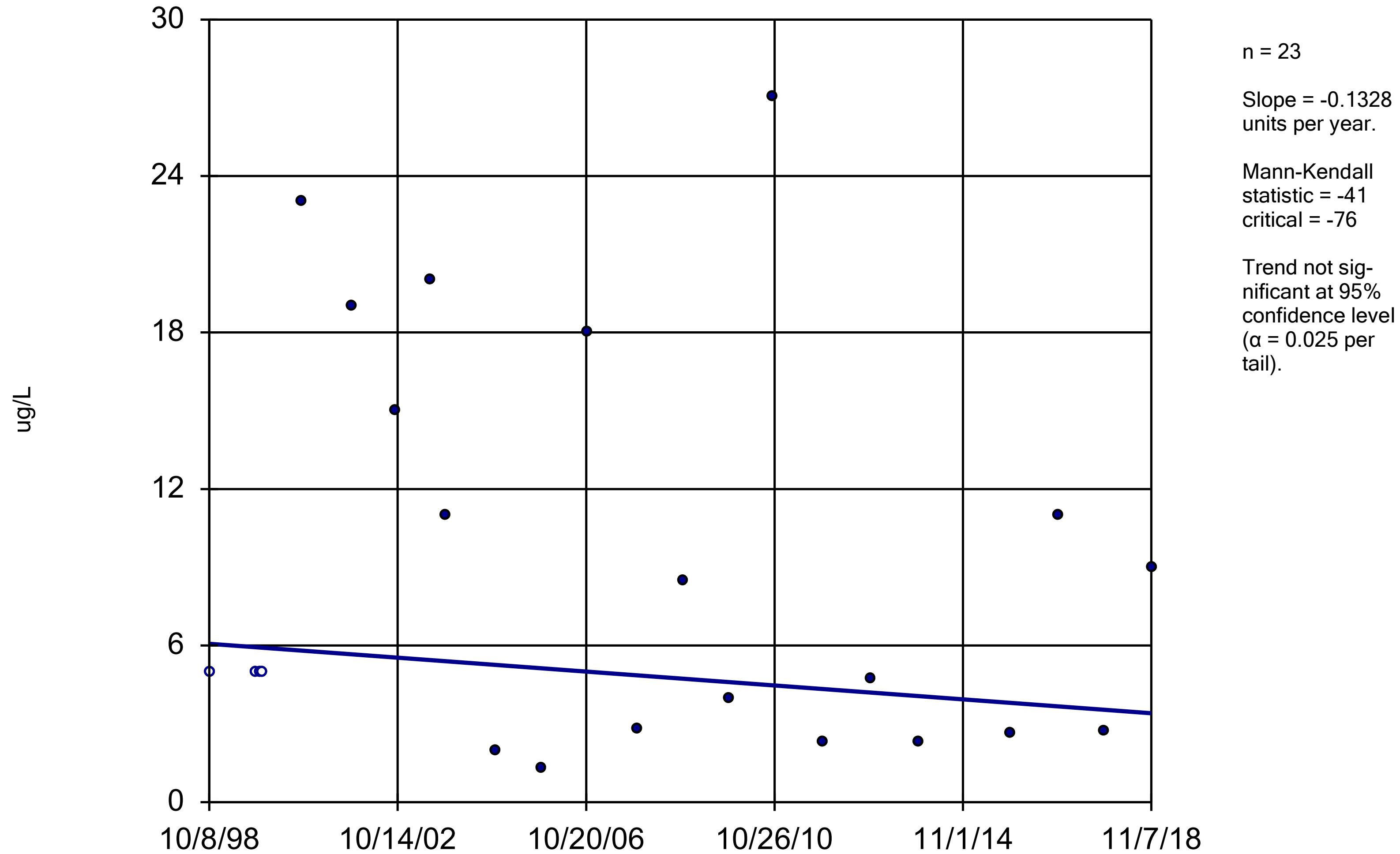


Constituent: Vinyl chloride Analysis Run 9/25/2019 4:49 PM View: DO_ORP

OU3 HBR Client: Geotechnology Data: OU3 Master Data File

Sen's Slope Estimator

LA3

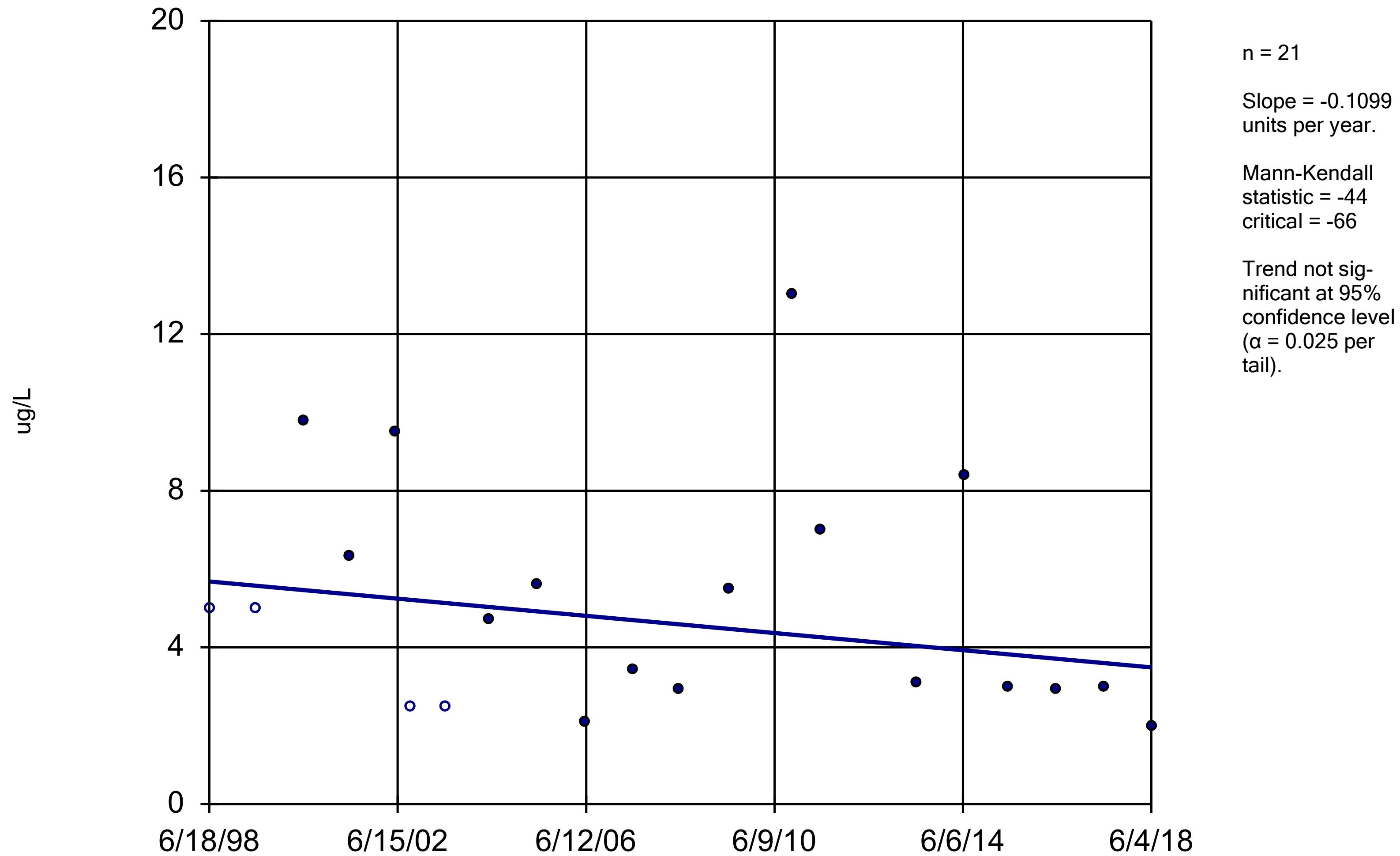


Constituent: Vinyl chloride Analysis Run 9/25/2019 4:49 PM View: DO_ORP

OU3 HBR Client: Geotechnology Data: OU3 Master Data File

Sen's Slope Estimator

MW2



Constituent: Vinyl chloride Analysis Run 9/25/2019 4:49 PM View: DO_ORP

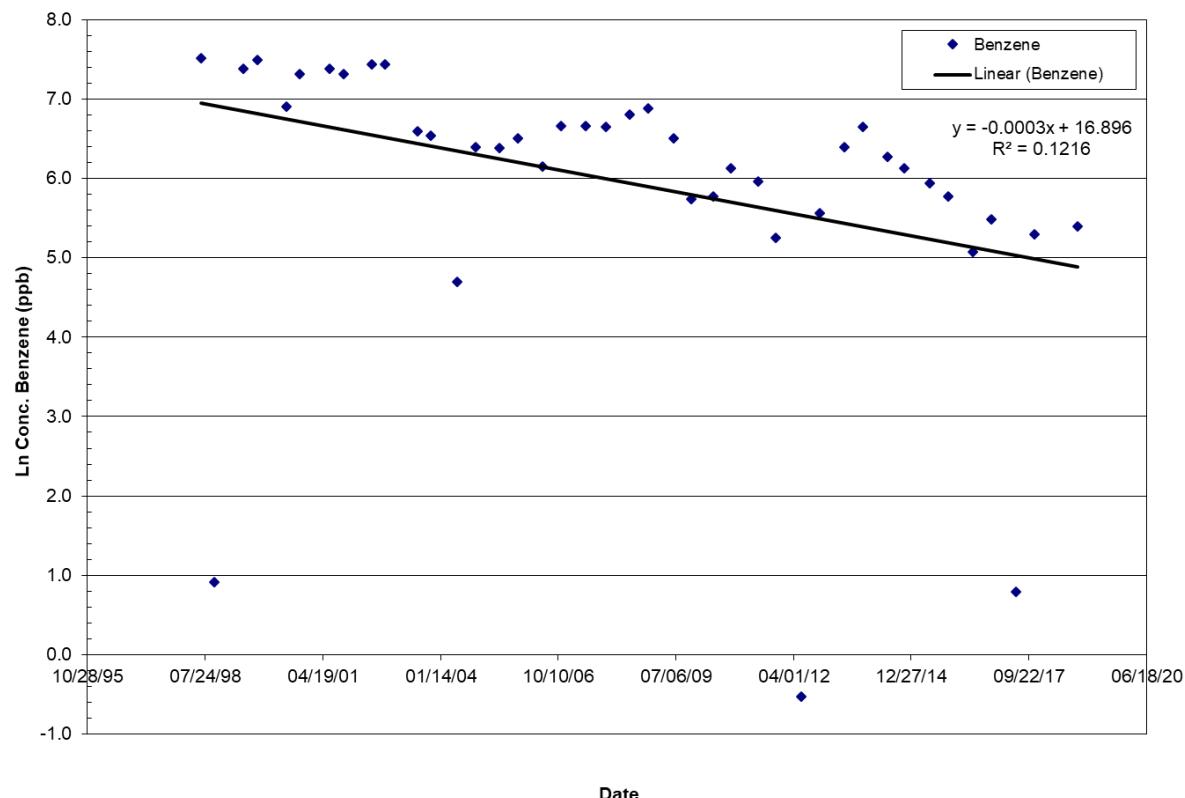
OU3 HBR Client: Geotechnology Data: OU3 Master Data File



APPENDIX J

OU1 REMEDIAL TIMEFRAME CALCULATIONS

MW-6 Benzene



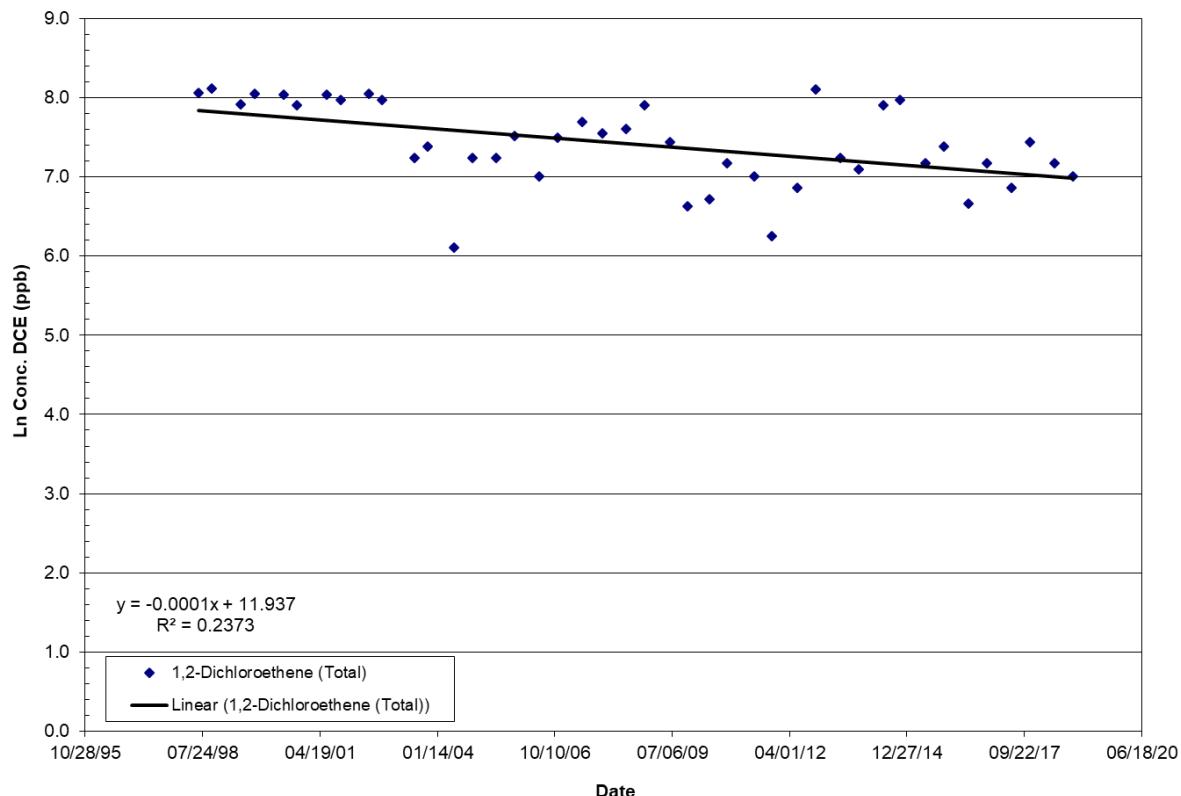
Estimated Attenuation Rate and Remedial Timeframe for Benzene at MW-6

Regression Statistics	
R	0.349
R ²	0.122
Adjusted R ²	0.099
Standard Error	1.656
Observations	41

k_{point} =	Slope (ln(conc) per day)	Regression (Trend Line) Equation		Confidence Interval	
		Coefficients	Standard Error	Lower 95%	Upper 95%
		-0.000277	0.000119	-0.000518	-0.000036

Remedial Timeframe Estimates				
C_{goal} =	MCL (ppb)	5	5	5
C_{start} =	Current Concentration (ppb)	220	220	220
	ln(C_{MCL} / C_{now})	-3.784	-3.784	-3.784
$t=$	Time to MCL (years)	37	20	290

MW-6 1,2-Dichloroethene (Total)



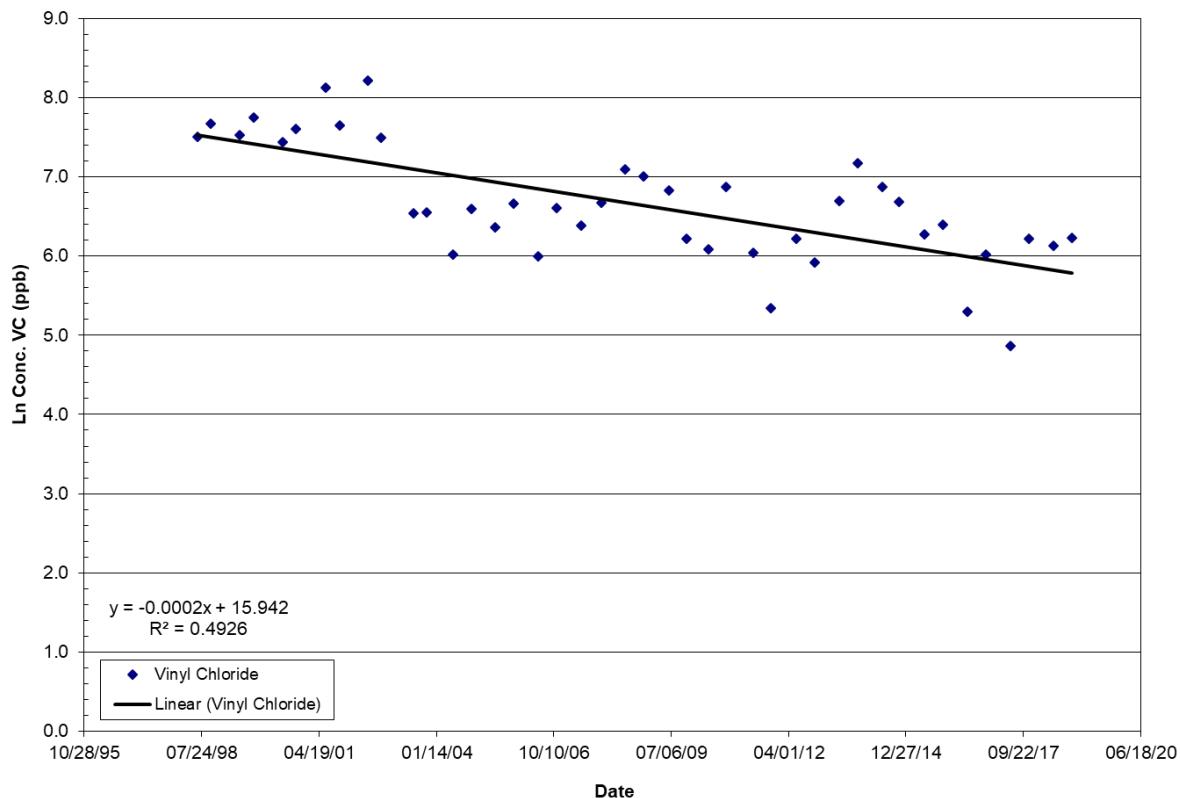
Estimated Attenuation Rate and Remedial Timeframe for 1,2-Dichloroethene (Total) at MW-6

Regression Statistics	
R	0.487
R ²	0.237
Adjusted R ²	0.218
Standard Error	0.464
Observations	42

k_{point} =	Slope (ln(conc) per day)	Regression (Trend Line) Equation		Confidence Interval	
		Coefficients	Standard Error	Lower 95%	Upper 95%
		-0.000114	0.000032	-0.000179	-0.000049

Remedial Timeframe Estimates				
C_{goal} =	MCL (ppb)	70	70	70
C_{start} =	Current Concentration (ppb)	1100	1100	1100
	$\ln(C_{MCL}/C_{now})$	-2.755	-2.755	-2.755
$t=$	Time to MCL (years)	66	42	155

MW-6 Vinyl Chloride



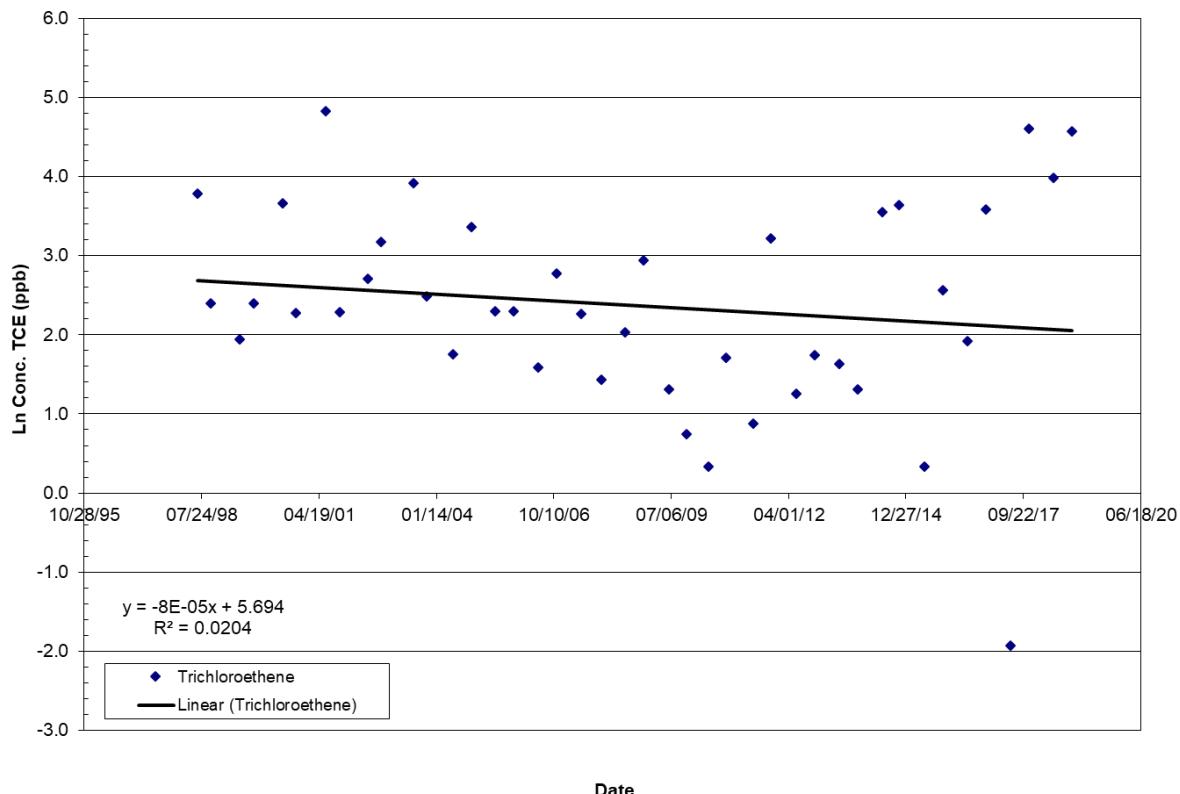
Estimated Attenuation Rate and Remedial Timeframe for Vinyl Chloride at MW-6

Regression Statistics	
R	0.702
R^2	0.493
Adjusted R^2	0.480
Standard Error	0.539
Observations	42

k_{point} =	Regression (Trend Line) Equation		Confidence Interval	
	Coefficients	Standard Error	Lower 95%	Upper 95%
Slope (ln(conc) per day)	-0.000234	0.000038	-0.000310	-0.000158

Remedial Timeframe Estimates				
C_{goal} =	MCL (ppb)	2	2	2
C_{start} =	Current Concentration (ppb)	510	510	510
	$\ln(C_{MCL}/C_{NOW})$	-5.541	-5.541	-5.541
$t=$	Time to MCL (years)	65	49	96

MW-6 Trichloroethene



Estimated Attenuation Rate and Remedial Timeframe for Trichloroethene at MW-6

Regression Statistics	
R	0.143
R ²	0.020
Adjusted R ²	-0.004
Standard Error	1.319
Observations	42

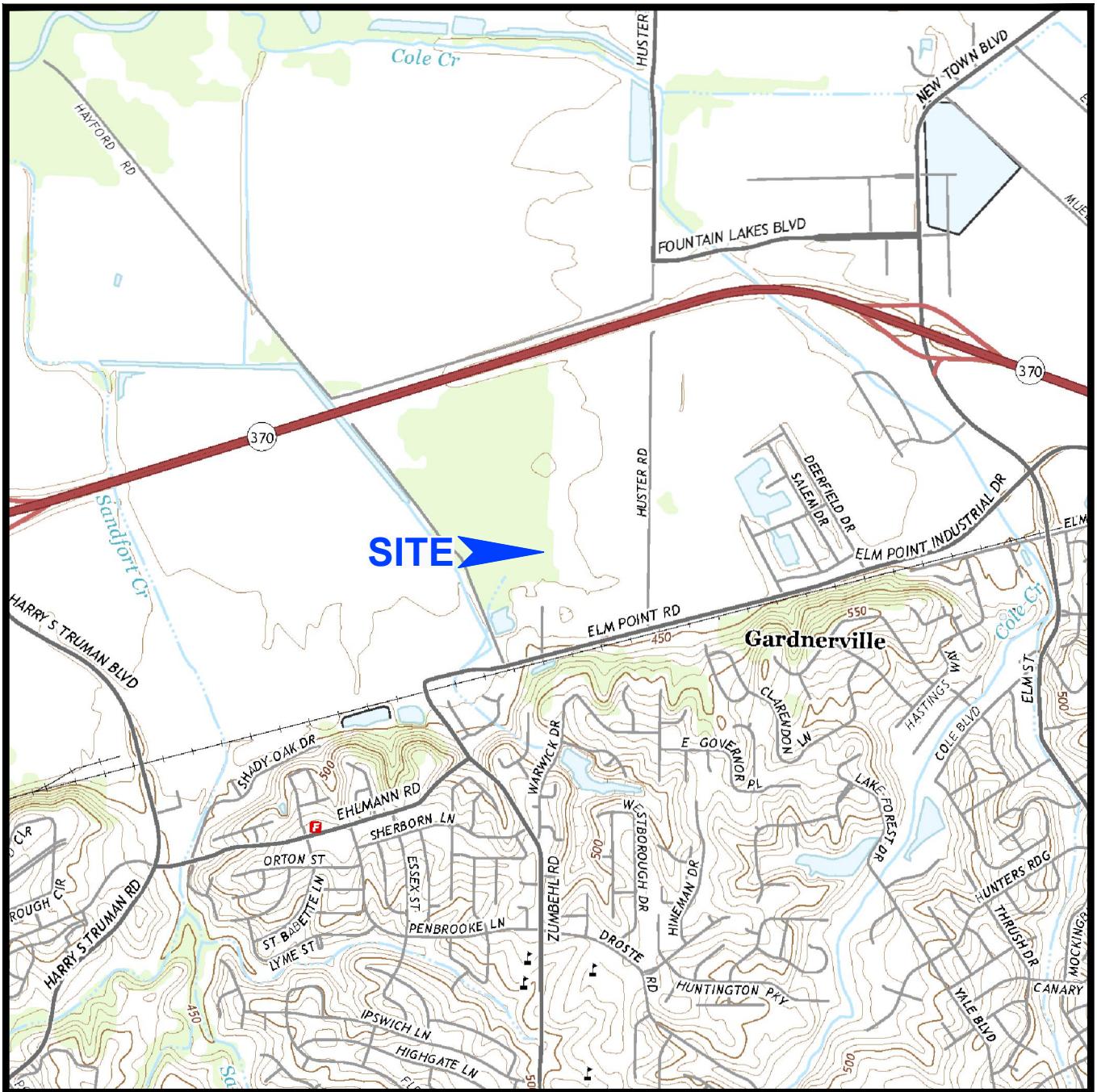
k_{point} =	Regression (Trend Line) Equation		Confidence Interval	
	Coefficients	Standard Error	Lower 95%	Upper 95%
Slope (ln(conc) per day)	-0.000084	0.000092	-0.000269	0.000102

Remedial Timeframe Estimates				
C_{goal} =	MCL (ppb)	5	5	5
C_{start} =	Current Concentration (ppb)	97	97	97
	In(C_{MCL} / C_{NOW})	-2.965	-2.965	-2.965
$t=$	Time to MCL (years)	97	30	-80

Note: Negative timeframe estimate is related to low coefficient of determination (R^2).



PLATES



NOTES

1. Plan adapted from a 7.5 minute U.S.G.S. map for Kampville, Missouri quadrangle, last revised in 2015.

0 2,000 4,000


SCALE IN FEET

Drawn By: WAH	Ck'd By: KJH	App'vd By: KJH
Date: 1-19-19	Date: 9-19-19	Date: 9-19-19
 GEOTECHNOLOGY <small>FROM THE GROUND UP</small>		
Operable Unit 3		
Hayford Bridge Road Groundwater Site		
St. Charles, Missouri		
SITE LOCATION		
AND TOPOGRAPHY		
Project Number J006295.11	PLATE 1	

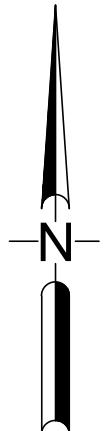


NOTES

1. Plan adapted from "2015 Aerial Imagery for the St. Louis Region" supplied by East-West Gateway Council of Governments.

LEGEND

- Elm Point Well Field Supply Well



0 1,500 3,000

SCALE IN FEET

Drawn By: WAH	Ck'd By: KJH	App'vd By: KJH
---------------	--------------	----------------

Date: 9-19-19	Date: 9-19-19	Date: 9-19-19
---------------	---------------	---------------

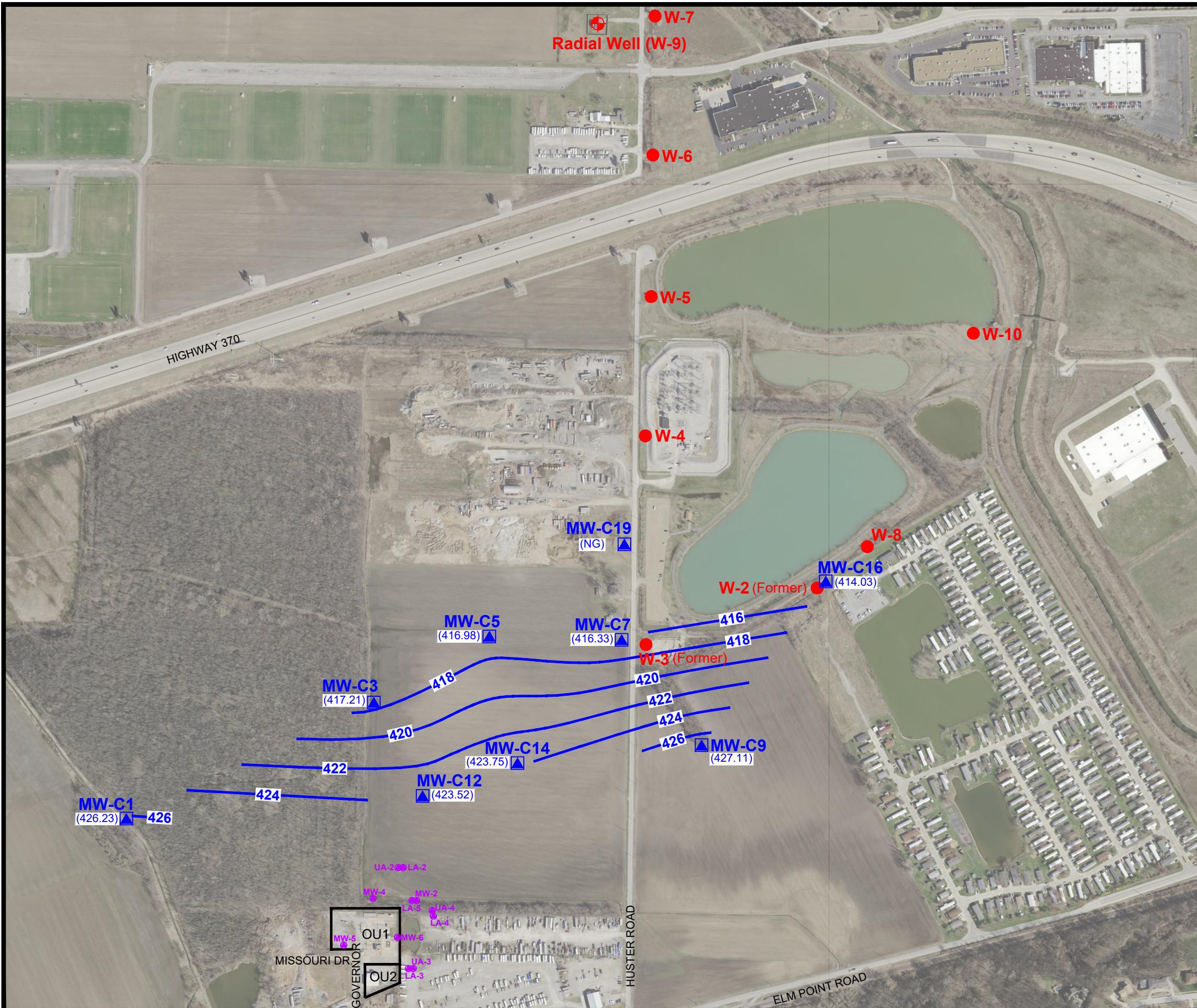


Operable Unit 3
Hayford Bridge Road Groundwater Site
St. Charles, Missouri

AERIAL SITE PLAN

Project Number
J006295.11

PLATE 2



NOTES

- MW-C16 and MW-C19 are screened from approximately 41 to 51 feet and 67 to 77 feet below land surface, respectively and are excluded from contouring.
- Plan adapted from "2015 Aerial Imagery for the St. Louis Region" supplied by East-West Gateway Council of Governments.
- The wells included in contouring are screened in the 25 feet to 35 feet bls interval.

LEGEND:

- Well of Elm Point Well Field
- Radial Well - Elm Point Well Field
- OU3 Monitoring Well Location (Existing)
(Approximate 25 - 35 Feet Screen Interval)
- OU1 Monitoring Well Location (Existing)
- (NG) Not Gauged - Well Not Gauged Due to Flooding
- (423.25) Potentiometric Head Elevation (ft-msl)
- Potentiometric Head Contour (Approximate)

0 500 1000

APPROXIMATE SCALE IN FEET

Drawn By: WAH	Ck'd By: KJH	App'vd By: KJH
Date: 9-18-19	Date: 9-19-19	Date: 9-19-19

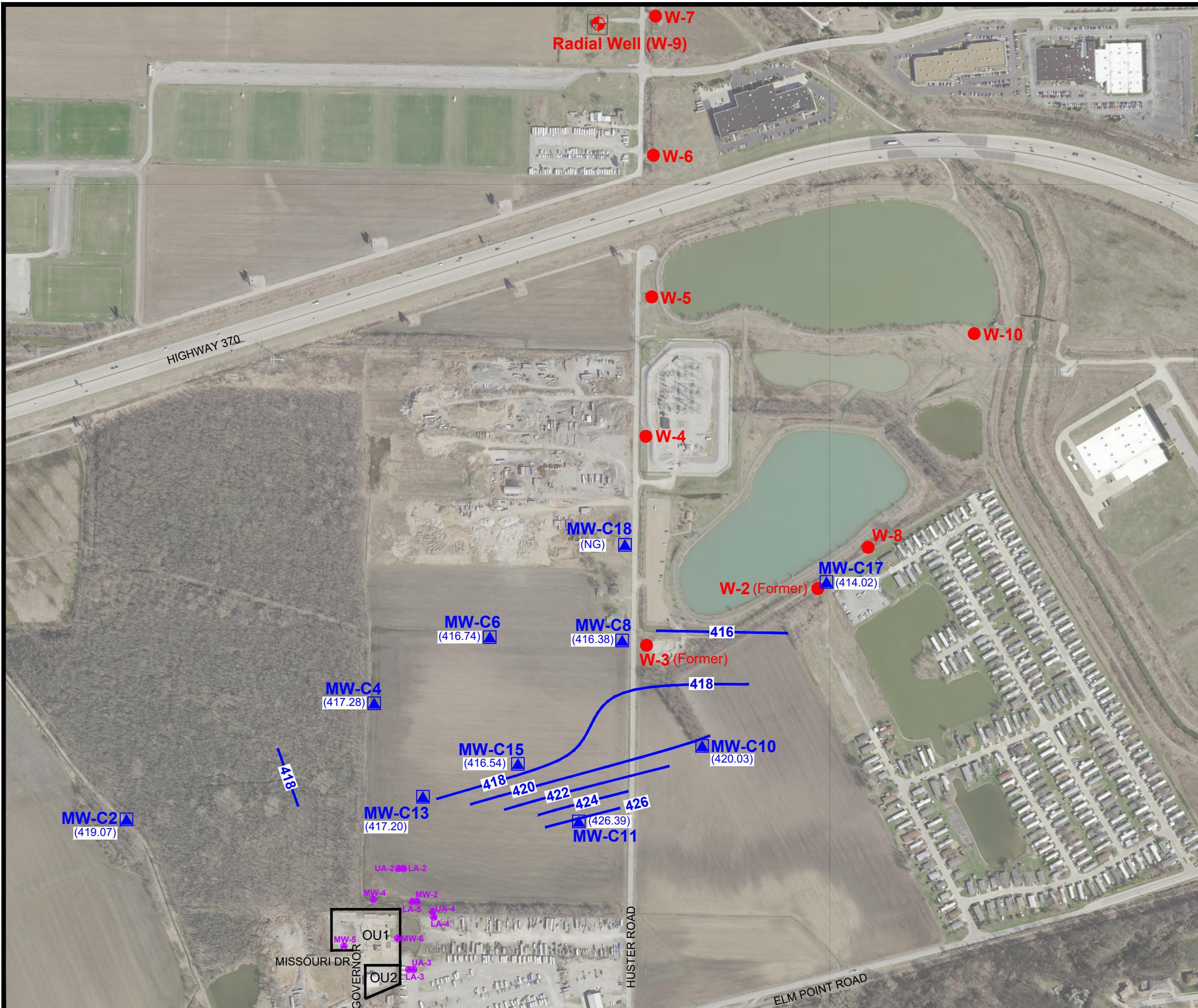


Operable Unit 3
Hayford Bridge Road Groundwater Site
St. Charles, Missouri

POTENTIOMETRIC HEAD CONTOURS
AUGUST 2019

Project Number
J006295.11

PLATE 3



NOTES

1. MW-C17 is screened from approximately 65 to 75 feet below land surface and is excluded from contouring.
2. Plan adapted from "2015 Aerial Imagery for the St. Louis Region" supplied by East-West Gateway Council of Governments.
3. The wells included in contouring are screened in the 35 feet to 45 feet bls interval.

LEGEND:

- Well of Elm Point Well Field
- Radial Well - Elm Point Well Field
- ▲ OU3 Monitoring Well Location (Existing) (Approximate 35 - 45 Feet Screen Interval)
- OU1 Monitoring Well Location (Existing)
- (417.07) Potentiometric Head Elevation (ft-msl)
- Potentiometric Head Contour (Approximate)

0 500 1000

APPROXIMATE SCALE IN FEET

Drawn By: WAH	Ck'd By: JYG	App'd By: KJH
Date: 9-26-19	Date: 9-26-19	Date: 9-26-19



Operable Unit 3
Hayford Bridge Road Groundwater Site
St. Charles, Missouri

POTENTIOMETRIC HEAD CONTOURS
AUGUST 2019

Project Number
J006295.11

PLATE 4

